Today's Health

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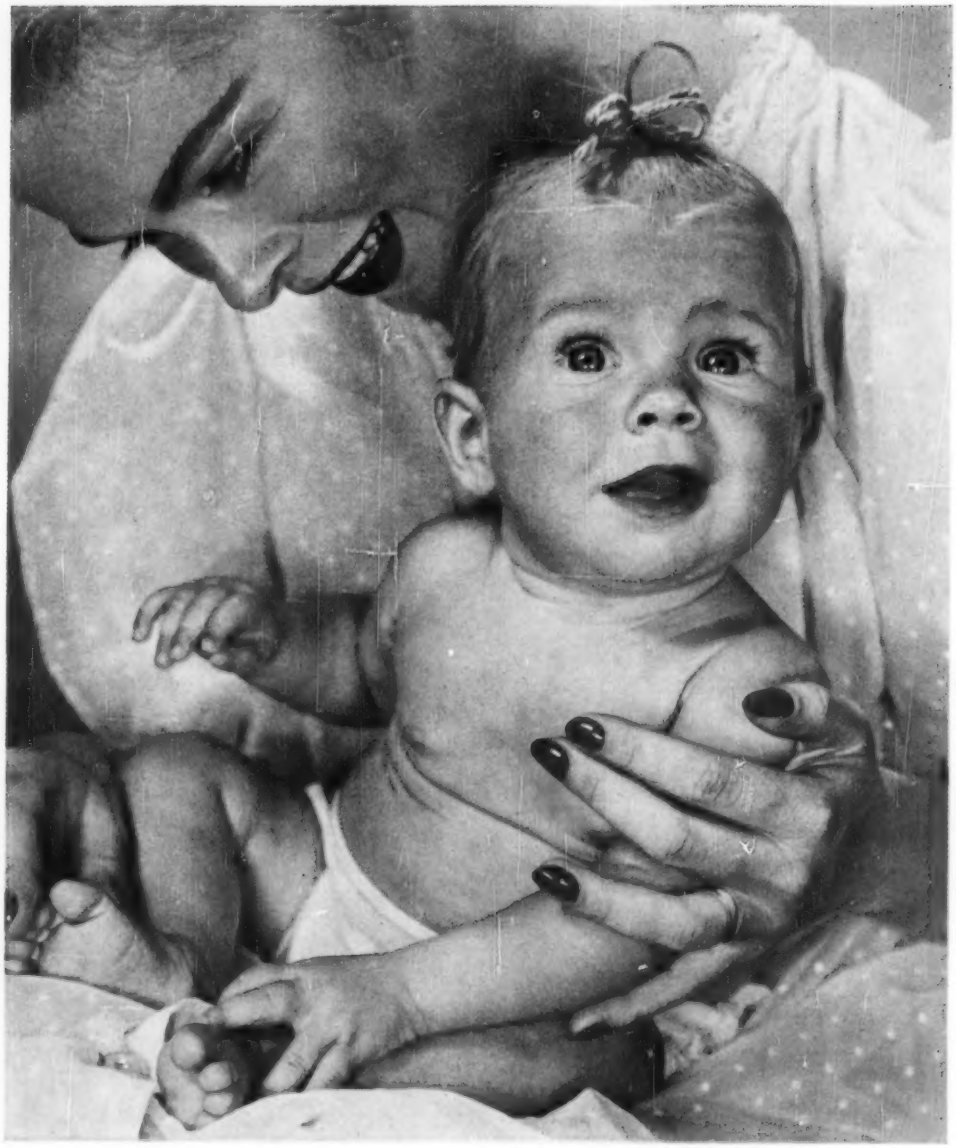
Etiquette Rules for Christmas Cards

The Quacks in Guidance Counseling

How Computers Can Save Babies' Lives



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That is why most companies manufacturing foods to be eaten early in the baby's life advertise only to the doctor. They leave to him the selection of the baby's feeding, and advise parents to do the same.

This advertisement is published in the interest of the welfare of your children by Ross Laboratories, Columbus, Ohio

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BLUE LAKE VARIETY GREEN BEANS

FROM OREGON AND WASHINGTON

(Where Blue Lakes Grow Best)

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As far back as he can remember, Al Guira wanted to become a physician so he could bring health and hope to people who needed it. Page 58.

COMING NEXT MONTH—

Are American Women Becoming Bald?

Not in the way men become bald, say dermatologists, but many of the skin specialists report great increases in the number of women consulting them about severe hair loss. The reasons for baldness in women, tips on shampooing, what kind of brushes to use, and which hair styles to avoid are discussed in a timely article any woman can read with profit.

"Because I was nervous–a 'Grumpy Grandpa'– my doctor started me on Postum."

"My grandchildren made me realize how irritable and nervous I was. 'Gee, Grandpa's grumpy!' I heard them whispering. Was there something wrong with my nerves?

"The doctor didn't think so. He asked if I'd been sleeping well. I hadn't. Then he asked if I'd been drinking lots of coffee. I had. It seems many people can't take the caffein in coffee and I'm one of them. Change to Postum, the doctor advised. It's 100% caffein-free—can't make you nervous or keep you awake.

"Did my grandchildren notice the difference? They certainly did. When you sleep well, when you're not on edge, you have lots more patience. I'm sold on Postum —I like the way it makes me feel. You will too!"

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Today's Health

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FOR THE AMERICAN FAMILY

December 1961

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Something to Think About

by Philip L. White, Sc.D., Secretary,
Council on Foods and Nutrition, American Medical Association

How Good Are the 900-Calorie Formula Diets?

WITHIN the last year and a half a group of more than 100 new reducing aids have appeared on the market. Some of these preparations are in liquid form, others are powders which require mixing with water, some are refrigerated, others are not. They all have similar nutritional characteristics and are used in much the same way.

When consumed in specified amounts, the formula diets are intended to supply the user with all the nutrients he needs, except calories. The recommended dosage provides a supply of calories (usually 900 per day) which is less than the individual needs to sustain his weight. Recently, a number of associated food products have appeared which are designed to provide even fractions of 900 calories. For example, soups, candies, cookies, and frozen desserts in 300-calorie portions. In theory, the user of a formula diet will automatically lose weight and still get the necessary nutrients he ordinarily obtains from food.

Since the formula diets are intended to supply all the nutrients needed by man, they raise the question of how much we know about man's total nutritional needs. It is true that we have knowledge of what appears to be man's total requirements for the nutrients, but this knowledge may not be entirely complete. We cannot say that the formula diets supply man with total nourishment until much more information has been gathered on individuals who have subsisted on the formulas for long periods of time.

When the 900-calorie formula diets began to appear on the market, questions were presented by the listing of ingredients and by promotional statements on the labels, as well as by advertising claims for the products. It was found that the labels of some products carried misstatements of the quantity of ingredients present.

The Council on Foods and Nutrition feels that the labels of these products should carry instructions for the maintenance of a normal intake of water. The formula diets by themselves do not supply enough water to meet the body's needs. If the user of a formula diet consumed no other fluids, dehydration of his body could result.

We have for some time been concerned about the statements made by the producers of some formula diets that the user will lose from two to five pounds per week. There is very little data to substantiate such a claim other than a few reports of initial weight loss by persons who were grossly obese.

The Council recognizes that the use of the formulas is simple, since it eliminates the problem of meal planning and thus eliminates the necessity for making decisions. The formula diets are effective, if adhered to. However, the Council has a number of reservations about their medically unsupervised use. Individuals who are excessively overweight and who may have additional ailments such as heart disease, kidney disease, or diabetes mellitus should not undertake weight reduction without the guidance of a physician.

The public has been given the impression that the 900-calorie diet is a painless, permanent, perfectly safe way of losing and controlling weight. There is no question that an individual subsisting on the formula alone will lose weight. However, the Council is not convinced that the formula diets alone constitute a rational approach to weight control in the seriously overweight.

One of the most important goals in any long-term weight control program is that of educating the individual in good and bad eating habits. This type of education is best achieved by building the diet around ordinary foods. A 900-calorie formula diet is a preparation which in no way resembles the overweight person's ordinary diet. Consequently, the user of a formula diet will never learn why the foods he has been eating have caused excess weight.

Furthermore, the monotony of the formula diet may result in its abandonment after a short period, at which point the individual usually resumes his accustomed food intake without proper nutrition education.

Extensive weight reduction should be carried out only with a physician's guidance, and with diets which are tailored to the individual's needs. Weight reduction must be considered a long-term procedure and education of the individual to the faults of his past eating habits is essential. Only the dietary program which results in permanent weight loss and lifetime control of weight will be a satisfactory one. END

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that's a good QUESTION

Edited by WILLIAM BOLTON, M.D.

Winter Nosebleed

How can I prevent nosebleed in the wintertime? The rest of the year I am fine, but during cold weather I seem to have attacks almost every week or so. My general health is good, but I do have high blood pressure.

Recurrent nosebleed should receive careful medical attention, and there is no substitute for consultation with your physician about this problem. There might be some relationship to your hypertension, and therefore you should be sure to follow your doctor's advice about treatment of this.

Nosebleed is more likely to occur during cold weather—partly because of the greater prevalence of colds and sinusitis during that time of the year, with irritation and congestion of the delicate mucous membranes, which of course have a rich blood supply.

Sometimes nosebleed can be started just by blowing the nose too vigorously, and obviously one should never pick at crusts of mucus in the nose. Another contributing factor is greater dryness of the atmosphere, plus artificial drying that may result from overheating of homes and offices.

You might find it helpful to apply cold cream or petroleum jelly within each nostril gently, using a cotton swab or the tip of your little finger, if the nail is not too long. This could be done morning and night. Do not try to deposit this too deeply. It will spread over the area gradually.

Ovarian Function

I have only a quarter of one ovary left, according to my surgeon. Would I ovulate less than normal because of this?

With her usual foresight, nature has anticiapted any possible shortage so far as production of ova is concerned, and the ovaries are packed with thousands of them. Since, in most instances, only one ovum is released each month, the most that any woman would actually require would be only about 450 ova during the entire period of fecundity, from age 12 to age 50.

In your case, even though you have only a quarter of one ovary remaining, there undoubtedly are enough ova in that to assure continuation of normal ovulation throughout the remaining period before the change of life, when ovulation ceases.

Blueness of the Lips

My doctor has told me that I have cyanosis of the lips and face, and blames this on a heart condition that has been present for many years. What does "cyanosis" mean, and might there be other causes?

The term refers to a blue tinge in the normally red or pink mucous membrane or skin. It is due basically to decreased oxygen content of the red blood cells. If faulty heart action is responsible, this means that the rate of blood flow is slower than normal, and therefore the red cells pass less rapidly through the lungs (where they receive fresh supplies of oxygen). Some type of heart abnormality is the most common cause of cyanosis.

If a congenital heart abnormality is present, which is apparently not the situation in your case, the blueness of the skin or lips may be due to a defect that permits unnatural mixing of venous (blue) blood with arterial blood, thus altering the normal redness of the latter.

In carbon monoxide poisoning, extreme blueness may be observed, due to absorption of carbon monoxide instead of oxygen by the hemoglobin of the red cells.

(*Continued on page 9*)

Today's Health News

by ALTON L. BLAKESLEE

Recovery From Flu: Persons subject to fits of the blues take much longer to get over attacks of influenza than those with high morale. Psychiatrists at The Johns Hopkins University, who gave psychological tests to 600 persons before a flu epidemic broke out, found the depression-prone people complained of tiredness and weakness for three weeks after falling ill, compared with an average of eight days for the others.

Heart Repair Technique: The hearts of hamsters have been stopped completely for more than five hours, then the animals were revived with no effects on the brain as measured by any loss of memory in running a maze, reports Dr. Charles E. Huggins of the Harvard Medical School. A new technique cooled the hamsters to 32°F., and used carbon dioxide to reduce the strain on the heart. The method could prove useful in repairing heart defects in infants too tiny to be attached to heart-lung machines, he told the American College of Surgeons.

Lump in the Throat: A lump in the throat can have a physical cause, but usually doesn't, says a Canadian physician reporting on 200 patients. Most cases of the lump are meaningless, and are caused by tension and worry. The trouble usually disappears when this is explained.

Fallout Contamination: Sea animals, and therefore seafood, are less likely to become radioactively contaminated from fallout than land animals, report biologists of the University of Washington. They say strontium-90 tends to precipitate relatively quickly to the ocean bottom; it is diluted by the ocean, and sea life tends to discriminate against it.

Air and Automobiles: Automobiles are the heaviest contributor to polluted air, says the publication Patterns of Disease. Every day last January, automobiles puffed 965 tons of hydrocarbons, 19 tons of sulphur dioxide, 6850 tons of carbon monoxide, 250 tons of nitrogen oxides, and 27 tons of aerosols into the air over Los Angeles. Cities with the highest concentrations of air pollution have statistically higher rates of respiratory ailments, including bronchitis and lung cancer.

Smoking and Heart Disease: Two physicians offer an explanation for the statistical relationship found between heavy cigarette smoking and a higher incidence of heart attacks. "There is suggestive evidence that cigarette smoking may play a role in the precipitation of acute myocardial infarction in individuals who already have advanced coronary atherosclerosis," say Drs. David M. Spain and Daniel J. Nathan of Brooklyn, New York. But the view that heavy smoking causes atherosclerosis, or clogging of arteries, "still must be regarded with extreme caution."

Drug to Prevent TB: Isoniazid, a drug effective in treating victims of tuberculosis, can also prevent the disease in other members of the family, a Public Health Service study finds. The test involved 25,000 persons in homes of newly-discovered cases of TB. Half of the persons received the drug, the rest did not. Isoniazid was credited with 80 percent effectiveness in preventing the disease. How long the pro-

(over)

tection lasts has still to be determined, said Dr. Luther L. Terry, surgeon-general.

Leukemia Virus: National Cancer Institute scientists have succeeded in extracting nearly pure virus from the blood of rats infected with a virus-caused leukemia, or blood cancer. The technique, using a centrifuge, could aid in the search to learn whether viruses cause human leukemia.

The Brain, Super Machine: Current research in many laboratories is bringing "a new conception of the brain," remarks Neal E. Miller, Yale University psychologist. "We no longer view the brain as merely an enormously complicated telephone switchboard which is passive unless excited from without. The brain is an active organ which exerts considerable control over its own sensory input. The brain is a device for sorting, processing, and analyzing information. The brain contains sense organs which respond to states of the internal environment, such as osmotic pressure, temperature, and many others. The brain is a gland which secretes chemical messengers, and it also responds to such messengers, as well as to various types of feedback, both central and peripheral."

Billion-Dollar Bilking: Americans spend more than $1 billion a year "needlessly on falsely represented drugs, foods, and cosmetics," George P. Larrick, commissioner of food and drugs, estimates. "The most widespread and expensive type of quackery in the United States today is in the promotion of vitamin products, special dietary foods, and food supplements. Millions of consumers are being misled concerning their need for such products. Complicating this problem is a vast and growing 'folklore' or 'mythology' of nutrition which is being built up by pseudo-scientific literature in books, pamphlets, and periodicals," he told the National Congress on Medical Quackery sponsored by the American Medical Association and the Food and Drug Administration. And "more and more we are running into what we are sure is rigged research—the study that was set up and written up to support a claim rather than to seek for scientific truth."

Extraterrestrial Life: On the moon and planets, living organisms may have been lying dormant for millions of years, frozen by the tremendous cold. Spacemen one day may bring them to earth, letting them thaw back to life, says Dr. Audrey Smith of the National Institute of Medical Research, England. On earth, she points out, many insects and shellfish can survive repeated freezing and thawing, and animal tissues can be frozen into suspended life indefinitely through treatment with glycerol or other chemicals.

Chest to Head: Some men are bald, but have profuse hair on their chests. This hairy skin should be transplanted to the scalp, and would grow the same type of hair there as on the chest, a consultant remarks in the AMA Journal, but "such a surgical treatment for baldness is hardly warranted."

These news items, gathered for Today's Health by a veteran science reporter from sources where serious scientific work is being carried on, are reported as interesting new developments, and should be read as such. Obviously no "endorsement" by the American Medical Association is implied by the publication of news items. —Editor

That's a Good Question

(*Continued from page 6*)

There is a good chance that in your case the blueness can be corrected as your doctor improves your heart function.

Histamine Injections

Why is it necessary to have so many injections for correction of my trouble? I have severe headaches that my doctor says are due to histamine.

You presumably are being desensitized to histamine. In this, as in all desensitizing procedures, the body's adjustment or "resistance" to histamine effects must be built up gradually. Therefore, your doctor must start with very small injections and increase the amount gradually. As these are given over a period of time, the body becomes able to stand larger histamine exposures without developing reactions like severe headaches or perhaps skin reactions. As you can understand, if large doses of histamine were given initially, these would simply produce the original type of reaction.

Tired Eyes and Vitamins

Could persistent tired eyes be the result of a vitamin deficiency? I have a constant desire to go to sleep.

It is a popular practice to blame almost everything on "lack of vitamins," which usually is more imaginary than real. Your problem is more than simply tired eyes, if you feel a constant urge to sleep. Eye tiredness is usually manifested by blurring of vision, inability to concentrate while reading, and a "scratchy" feeling of the eyeballs.

You apparently are suffering from general lassitude, which might result from many body disorders ranging from anemia through various glandular deficiencies. Your only sensible approach to this problem is to have studies made by your physician. This is no time to treat yourself with vitamins or other "prescriptions" from uninformed friends.

Cause of Fever Blisters

I go to the seashore almost every week end, and then in the middle of the following week, I get a fever blister. Do you think the sea air might be responsible?

(*Continued on page 16*)

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Lady Doctor's First Assignment:

Africa

Last summer, Dr. Myrtle Caton (left), just out of medical school, spent 12 weeks in Africa on a work-and-study fellowship. She is shown examining a child at the Seventh Day Adventist hospital in Ile-Ife, Nigeria.

by JOHN MOSS

WITH THE INK on her diploma from the College of Medical Evangelists barely dry, Myrtle Caton, M.D., began last June to pack for a trip abroad. This was to be no pleasure cruise in which to rest and relax after the grind of medical school. Doctor Caton's trip was to Africa for more study—working in hospitals and clinics under practicing physicians, toiling long hours, eating native food, living and traveling under primitive conditions.

The 25-year-old Brooklyn-born woman was one of 30 American medical students (26 men, four women) who this year received fellowships to visit underdeveloped areas in Central America, the Far East, the South Pacific, and Africa. Grants totaling $50,000 to cover travel and living expenses were supplied for this program for the second year by Smith Kline & French Laboratories, a Philadelphia pharmaceutical firm.

Myrtle Caton says she wanted to be a doctor since she was eight years old. Her special interest is preventive medicine—and there is perhaps no better place to participate in this than in Africa. Surely no place on earth is more in need of preventive medicine. Tetanus, malaria, leprosy, anemia, diarrhea, tuberculosis, typhoid, malnutrition—these are some of the diseases plaguing Africans.

To the African mother, a child suffering one or more of these afflictions is something to be accepted—something willed by an evil spirit. During her life she will bear about eight children and she'll consider herself lucky if four survive past age five. Fear of losing a child is ever-present. She knows nothing of physiology and has little or no knowledge of the causes of disease or of its recognition until the terminal stage is reached.

Working in small hospitals and clinics supported by local governments, church mission programs, and MEDICO, Inc., the SK&F fellows spend their 12-week overseas tours healing as well as learning. When they return they are required to write reports of their experiences to the Association of American Medical Colleges, administrator of the $180,000 fund which supports the fellowship program.

The adventure for Doctor Caton began last June in Accra, Ghana, in West Africa, where as the guest of Dr. D. W. Harrison of the Korle Bu Hospital she spent much of her time working with children. At the Children's Hospital she attended health education classes and saw people learning the basics of good nutrition. Officers of the Ministry of Health showed how to prepare and serve a multi-purpose food of

PHOTOS, SMITH KLINE & FRENCH LABORATORIES

Doctor Caton found Africa a land of striking contrasts. Above, at the University Hospital in Ibadan, Nigeria, she chats with students, one of whom asked, "Are you a Yoruba?" Below, she walks in a dirty alley in Imesi-Ile, a small Nigerian village, where she found children suffering from malaria, malnutrition, and parasites.

At child welfare clinic in Ile-Ife, Yoruba youngster with velvet hat is slow to make friends. Clinic holds health education classes to teach mothers how to improve their families' diet by using special protein mixtures.

In Ghana, she visits with fishermen mending their nets. Powdered fish meal, rich in protein, much cheaper than powdered milk, and easily stored, has become an important aid in improving nutrition in Ghana and Nigeria.

groundnuts, vitamins, milk, meal, casein, and calcium, among other ingredients.

Doctor Caton believes that such classes are of great importance in Africa's growing nations. She found that malnutrition is one of the prime causes of illness in West Africa, and she's convinced that once the people are made aware of the importance of proper diet, especially for children, the hospital wards would cease to be overcrowded. Many children die of measles because of lowered resistance which can be blamed only on an improper diet. Kwashiorkor, a protein deficiency disease which strikes mainly children, is widespread.

Kwashiorkor, incidentally, has an unusual derivation. In the Yoruba language, "kwashi" means first and "orkor" means second; *i.e.*, "the second kills the first." The people are aware that a second baby causes the first to suffer kwashiorkor but they do not know the reason: Weaning the first child to breast-feed the second takes away the older child's source of protein, mother's milk. After a child is weaned it is fed little else than starchy paps.

THE influence of native doctors is another problem in Africa. Though still a potent factor in many areas, it is waning with the spread of health education. Doctor Caton saw many babies brought into the pediatrics ward of Princess Mary Louise Hospital in Accra covered with a black substance prescribed by native doctors for burns. The "medicine" did more harm than good. Other native remedies used for rashes actually removed much of the skin.

Outside her hut in Imesi-Ile, a Nigerian woman grinds flour from the roots of cassava plants. Dispensary in this village is conducting the nation's first reliable study of infant mortality, child growth and development.

In Ghana, Doctor Caton discovered how birth control can be an indirect result of an unusual native custom. After giving birth, a mother stays with her husband only 40 days. Then she goes to her father's family until the child is weaned—two to three years. Though this enforced separation takes some of the boom out of the population explosion, some feel that it probably promotes polygamy.

AT the Ministry of Health in Accra, Doctor Caton met Dr. Frederick Sai, deputy chief medical officer. Doctor Sai, who studied at the Harvard School of Public Health, puts great hope in the 50 government health centers throughout Ghana (50 more are planned by the end of 1963). At these centers, physicians give lectures on hygiene, nutrition, and sex education and distribute booklets on diet.

Because of the country's small population and high infant mortality rate, Doctor Sai explained, great emphasis is placed on child welfare. The program already has paid big dividends. Before Ghana became independent in 1957, the child mortality rate was 50 percent; in only four years, modern medicine has reduced it to 20 percent.

In northern Ghana, Doctor Caton visited the 500-bed Kumasi Central Hospital, most modern in the nation. And 25 miles from Kumasi, she toured the health center at Krokeri and watched health officers at work in the bush. Teams of health inspectors visit villages with powers to clean up unsanitary conditions in markets and slaughterhouses. They inspect outhouses and conduct rat extermination campaigns.

Each health center has at least one midwife who has undergone a special three-year training course. Even further in the bush are outlying dressing stations, attended by health officers prepared to deal with emergency cases.

At the health centers, the emphasis is on preventive medicine; patients with serious ailments are sent to hospitals. Each center takes care of an area within a 10- to 15-mile radius. All schools in that area are visited twice a week for examinations of ears, throat, nose, and skin.

In northern Ghana, Doctor Caton saw many outlying villages and, in mud hut compounds, she witnessed crowds gathering as public health nurses distributed powdered milk. She noticed several babies, some only a few days old, with blue mascara smeared around their eyes. Asking the reason, she was told that "it keeps away the flies!"

She found that in the northern part of the country children are often in better health because they cannot get such carbohydrate foods as white bread. In the south of Ghana many more proteins are available, *e.g.*, beans, nuts, grain, bananas, and milk, but the people ignore them in favor of carbohydrate foods.

THrough the efforts of health officers, these habits are being broken. Units go constantly out to the villages to observe the natives' diets, to learn how many calories they consume, and to discover how they can improve the diets without the use of special protein mixtures. In many parts of Ghana, successful experi-

In Accra, Ghana, many protein foods are available but people reject them for carbohydrates, such as white bread.

In the surgery of Ile-Ife hospital, she watches as Dr. Larry Longo, an American physician, performs a spinal tap.

Primitive customs persist amidst clean, modern hospital conditions. This aged Yoruba enjoys a native dish called eko, a mixture of corn and beans wrapped in leaves. Emphasis in both Nigeria and Ghana, Doctor Caton found, is on improved nutrition.

Improper diet, due to superstition as well as poverty, lowers the natives' resistance to many diseases. This woman is a victim of pneumonia. Scars disfiguring her face are tribal markings.

ments have been conducted with powdered fish meal, rich in protein and much cheaper than powdered milk (which may cause diarrhea in kwashiorkor patients).

Near Bawku, government agriculture teams were damming up streams to create reservoirs for water and fish, which will add protein to the usual diet of millet and corn. Demonstration farms have been established near villages to grow vegetables, and the people are invited to come and learn to start their own gardens. Seeds are distributed and the women are taught to cook new dishes.

In August, Doctor Caton went to Nigeria, where she spent the month at the Seventh Day Adventist hospital at Ile-Ife, in the western part of the country. When the 140-bed hospital opened in 1944 with only two wards and 40 beds, there were few roads, and the people came by foot, on bicycles and hand-stretchers, often from great distances. At first, only a few people trusted modern medicine and the women were reluctant to abandon native midwives. Confidence grew slowly, however, and last year more than 1000 babies were delivered at the hospital, as compared with 70 in 1946.

Some 50 miles from Ile-Ife, at a bush dispensary in Imesi-Ile, a study is being made of infant mortality and child growth and development. The 425 children involved are followed from the fifth month of pregnancy to age five. Each child is seen by a physician every two to three weeks, is weighed, measured, and examined. Details of diet and behavior are noted.

Out of this study will come the first reliable statistics on the causes of child deaths in West Africa. And even though most of the children under study are suffering from malaria, intestinal parasites, malnutrition, and frequent bouts of diarrhea—despite the frequent medical attention—they are healthier than the children in most of Nigeria's villages.

Doctor Caton checks young victim of cancrum oris, a form of gangrene rare in the U.S. In background are relatives of patients. They visit hospital, bringing food, making high standards of cleanliness difficult.

THE children at Imesi-Ile are vaccinated and inoculated and given anti-malarial drugs. Their mothers are taught the rudiments of hygiene and nutrition—not an easy task because of native superstitions. The Nigerians believe that to feed a child meat or eggs will spoil him. The inevitable result: malnutrition. Health workers feel a sense of achievement if only they can persuade a mother to give her children some beans each day.

In both Ghana and Nigeria, the diseases are similar, and similar efforts are going on today in health education and disease prevention. Swamps are being cleared, villages are being sprayed with insecticides, health classes are being held in the bush. Mobile film units tour remote regions showing films on how to plant vegetables and the importance of crop rotation.

But the major emphasis in both nations is on nutrition. The powdered fish meal, especially, is helping to provide needed protein. It has the additional advantage of being easy to store in areas where refrigeration is unknown and where fresh fish cannot be stored during most of the year.

Not all of this is being done by outsiders or by local governments. The people are beginning to help themselves to better health. At Imesi-Ile, Nigeria, the villagers pitched in and built the dispensary. At another Nigerian bush clinic, the 7000 townspeople of Inisha gave 5000 pounds over five years to pay for a clinic and a maternity ward which together handle more than 150 patients daily.

MYRTLE Caton is back in California now, serving her internship at the Los Angeles County Hospital. She has brought back with her a deeper understanding and appreciation of her special interest, preventive medicine. More than that, she has brought back the conviction that health education is more important than gleaming hospitals. For without health education for all the people of Africa, there is little point in having the most modern hospital with over-full wards. END

CHRISTMAS COOKIES

Delicious. Exciting. Easy and fun to do. And, so unusual that every one thinks these are just about "the cutest Christmas cookies ever created."

Here's a Christmas project you and the children can both have a good time sharing. It's all so simple and easy, doesn't take up too much time and the cost can be held down to very little.

THEY ARE SO ENDEARING and merry looking, such cookies as these can't help but add cheer whenever or however you use them during the holidays.

EVEN A SINGLE COOKY all by itself delights as a little remembrance to anyone. Also here's hit idea for place cards, guest treats.

MAKE OR PURCHASE 48 plain sugar cookies. For 48 cookies—mix pasty icing with 6 C. sifted confec. sugar, 8-9 Tbs. hot water. Keep ⅓ white. Tint ⅓ pink; ⅓ red. Coat top of the cookies.

THE LITTLE ORNAMENTS can be had from past Christmas leftovers. Or make yourself from paper, felt, sequins, pipe cleaner "fuzzy wuzzie" rods. Or get at variety or dept. stores.

THE ORNAMENTS ARE ABOUT 1½–2" tall. Set on circle of waxed paper or aluminum foil.

BY WIRE OR TOOTHPICK secure ornament to the cooky. Wrap end inserted in cooky in waxed paper or foil.

A happy, wholesome holiday treat!

Keep an open box of delicious Wrigley's Spearmint Gum for folks to treat themselves. Put a few packages in Christmas stockings. All love it. And, never rich or filling.

That's a Good Question

(*Continued from page 9*)

A more likely cause would be the rather intense sunning to which you probably are exposed. It is well known that sunlight is identified among the many possible causes of fever blisters. Others are strong winds, exposure to drafts, emotional excitement, stomach upsets, and various minor illnesses.

Many women may develop fever blisters at the onset of the menstrual period. Sometimes an irritating metal filling in a tooth may be a precipitating factor. This sums up to the fact there is no single cause that can usually be identified accurately.

Once a blister has developed, there is no treatment that can be recommended routinely. In severe cases, x-ray may be employed with benefit. Prevention may be improved by keeping the general health at a high level and by eliminating any chronic infection, especially in the mouth and teeth.

Repeated administration of smallpox vaccination has been reported to interrupt the cycle of fever blister development, as has vaccination with serum from the blister itself.

Injection Gun

I have heard there is a special type of syringe that injects medicine beneath the skin without a needle being required. How does this work? Could I use it to give myself insulin?

The so-called jet injectors, which are used much like a gun, with a trigger release, have been available for a few years. A cartridge containing the medicine to be injected is locked into the gun, and then, as the nozzle is applied to the skin, either a strong spring or hydraulic pressure is released, forcing the material beneath the skin in a fine spray.

This method has many advantages, including painlessness, which may be an important factor in some people who must have daily injections. It also has been claimed that there is less likelihood of this procedure transmitting infections that might occasionally be carried on needles.

One problem with use of the pressure injection is that in most cases only standard doses are available in cartridge form, making it difficult for one to obtain greater or smaller amounts easily. Cost of the special apparatus is still rather high. END

GROWING PAINS

Edited in cooperation with the American Academy of Pediatrics

My son, eight, was stung by a wasp recently. His face swelled up, and he could hardly breathe. The doctor treated him with adrenalin and said we should be careful he is not stung again. Is there any way he could be immunized against this?

We do not know all the circumstances of your son's life, but in general it is advisable to consider immunizing against wasp or bee stings when there has been a moderately severe local reaction and/or some systemic or general signs such as headache, swelling of other parts of the body, and collapse.

Extract of wasps is available to doctors from pharmaceutical houses or can be made to order. Usually, the whole body of several different stinging insects is used in preparing the immunizing substance, because it has been found that the immune response is better than if the venom alone is used. Immunity is produced by injecting gradually increasing doses of the extract over a period of several weeks. The injections have to be repeated from time to time to maintain satisfactory immunity. With this protection insect stings usually produce only a mild local reaction.

What makes children carry tales about other children? How can one stop it?

A child generally becomes a tattletale because of parent or teacher encouragement. In their desire to know what goes on behind their backs, parents and teachers show a willingness, if not an actual eagerness, to listen to what the child has to tell them about other children. Of course it gives the child a feeling of importance to know he can command adult attention. Furthermore, it gives him a feeling of superiority to know that he can get another child into trouble. The best cure for tattling is to shut your ears to it. When a child discovers that no one will listen to his stories about another child, he soon abandons his tales. If a situation obviously requires attention be sure to get both sides of the story.

How does carbon monoxide poisoning occur? In the average home, is there any reason for suspecting it? What symptoms might make you suspicious?

Carbon monoxide poisoning occurs whenever one is exposed to excessive amounts of this gas. Because the gas is odorless and colorless, such exposure may not be suspected in many instances. The poisoning consists of replacement of oxygen in the red blood cells by the carbon monoxide. Carbon monoxide gas can displace the oxygen because it is 250 times more easily absorbed by the hemoglobin of the red cells than is oxygen.

This type of poisoning can occur if one has contact with the fumes from any form of combustion. In the average home, if fires are properly vented, this should not be a serious problem, but the wise home-owner will make sure flues and chimneys are not blocked in any way. There have been reports of chronic carbon monoxide poisoning from improper venting of gas-operated refrigerators.

It is believed there may be more cases of low-grade poisoning than is suspected. A common cause of low-grade poisoning is fumes from motor vehicles. Most people know about the dangers of working in a closed garage when an automobile motor is running. Another less obvious danger is from leakage of exhaust fumes of an idling engine into the house where the garage is attached.

Symptoms in the early stages of poisoning include headache, weakness, nausea, and vomiting. Often these may be mistaken for severe colds or gastrointestinal upsets. Poisoning should be suspected in the home if all members of a household display the same type of symptoms. Carbon monoxide poisoning does not require any specific treatment other than removal to an area where the gas is not present. The gas does not actually poison the tissues, but causes illness and possible death simply by depriving the body of the necessary oxygen.

(Turn page)

GROWING PAINS

Continued from preceding page

Is there anything new that has been found satisfactory to make a child stop biting his nails? Our young son does it all the time, and nothing we do seems to have any effect. He does not appear nervous.

Nail-biting is frequently met with in children although not usually as a primary complaint. It is an automatic, unconscious, and frequently an impulsive act. Some children bite or suck other objects, such as their coat collar, or a strand of hair, pick their nose, or grimace, especially when their attention is absorbed or they are under emotional stress. These habits tend to occur in some form in many members of a family, and imitation seems to be a factor in their genesis. Nail-biting may at times be combined with bed-wetting, sleep-walking, night terrors, phobias, and other states indicating more than usual emotional upset.

It is an expression of tenseness, usually found in fidgety, high-strung, overactive children. Anticipation of a school examination, waiting to be called on in school, watching a frightening movie, or any excitement may increase tension, and nail-biting ensues. The origin of nail-biting is probably in the instinct of the child to put every object in the mouth. It is not a serious sign in a generally happy, successful child. It is usually less marked or may disappear when the child is at ease and happy.

Treatment should be directed at the causes of tension—toward finding what the pressures on the child are and trying to relieve them. These are not always discovered, but much can be done to build up self-confidence and security. Nagging or punishing a nail-biter never stops him for longer than half a minute because he seldom realizes he is doing it. It often increases his tension. Is he being urged or corrected or warned or scolded too much? Are the parents expecting too much in the way of household duties or lessons? Do they show sufficient appreciation and interest in the activities that interest the child?

Consult the teacher about his school adjustment. If movies, television, or radio adventures make him more jittery than the average child, he should be kept away from the worst programs. Restraints or bitter drugs applied to the nails do little good. Some children grow to enjoy the taste of the drugs; others turn to biting other parts of the fingers. Nail-biting responds slowly; in a period of adjustment other symptoms may disappear long before the nail-biting.

My husband has been in Korea for the past year and my son will be 2½ years old when he returns. I have read this is an age when children resist change. His father loves him but he is not the type that seems to know what to do with children. Is there anything you could tell me that would help me to ease my son though this period?

Your son has shared your undivided love and attention during this period. Until he experiences the new and wonderful things that a family with both parents can give him he will be frightened about the possibility that his father will come between the two of you and take away your love. He will therefore be jealous of his father. The same thing often happens when a new baby comes along after two or three years in which the youngest child has enjoyed a special status. The thing to do is to have his father make special effort to make friends again with his son, play with him as much as his son wants him to.

At the same time you and your husband should not think just of yourselves and your desires to be with each other during the child's waking hours. This will help the boy to learn that he is not losing you. It is true that children of all ages resist adaptive changes if it appears to them that it will mean a loss of love or pleasure. I am sure your natural parental instincts will help you show your child that this new situation means two sources of love and attention and that he will soon realize this and welcome his father.

I have a two-year-old daughter who is afraid of dogs. Whenever she sees a dog coming toward her, she clings to me and starts to cry.

Fear of dogs is a very natural and normal reaction for a two-year-old. Think of yourself in the child's place and try to realize how terrifying a dog must appear to her, especially when he barks or shows his teeth. Comfort her fears and try gently to reassure her. Give her opportunities to get acquainted with small dogs in your friends' homes, under circumstances where she will know she is safe, but don't try to rush her. Several years hence, when she is older and grows bigger, dogs won't look so massive and terrifying to her.

Other small pets such as turtles, guinea pigs, and cats are a good way to introduce a small child to the world of animals. In general, dogs are better pets for older children, not only because the child is bigger and feels more able to control the situation; but is also more stable and less apt to do something which will alarm the dog.

Readers are invited to mail their questions to Growing Pains, Today's Health, *535 N. Dearborn, Chicago 10, Ill.*

You never outgrow your need for the nutrients in Milk

From infancy through old age there is a constant and daily need for the kind of high quality protein supplied by Milk and Milk foods.

Daily intake of protein is necessary for the bodily maintenance of adults as well as for the growth of the young. Within the body of an adult there occurs a steady breakdown and using up of tissue protein.

A balanced diet therefore should include protein from all four food groups.

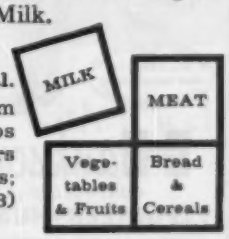
And because protein cannot be stored in the body as such, daily intake of Milk offers a dependable source of high quality protein. Milk protein is complete and can furnish the "essential amino acids" for healthy life processes and normal growth.

Besides serving as a daily source of high quality protein Milk and Milk foods are the principal source of dietary calcium.

While sunlight is the most economical source of vitamin D, milk fortified with vitamin D is our most economical and convenient food source of this vitamin.

Whenever a balanced diet is planned for any age group include Milk—because we never outgrow our need for the nutrients in Milk.

Milk makes it a square meal. Milk and other dairy foods form one of the 4 basic food groups you need every day. The others are (1) meats, fish, poultry, eggs; (2) fruits and vegetables and (3) breads and cereals.



AMERICAN DAIRY ASSOCIATION

The nutritional statements made in this advertisement have been reviewed by the Council on Foods and Nutrition of the American Medical Association and found consistent with current authoritative medical opinion.

COMFORT
the "ONE" recipe
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FEET THAT HURT!!

Barefoot Freedom, America's most attractive Comfort Shoes . . . certainly!
You'll get a correct fitting too, of course! For 40 years Miller dealers have been taught to sell you the shoe made over the basic last appropriate for your foot.

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Let's Talk About Food . . . *what you can do to assure your family's nutritional pleasure and profit.*

Edited by PHILIP L. WHITE, Sc.D.

•

Please list all foods that do not contain cholesterol. I would like to avoid cholesterol, but I'm not sure which foods are free of it.

Cholesterol is found only in foods of animal origin. Organ meats (liver, kidneys, etc.), dairy products, and eggs are the richest sources. To comply with your request would require listing all fruits, vegetables, and most fish.

The weight of medical evidence now suggests that the amount of cholesterol in human tissues is not directly related to the amount in the diet. Since the body makes its own cholesterol, the total tissue cholesterol is about the same regardless of the amount consumed.

It would be more of a hazard than an advantage to put yourself on a self-prescribed, low-cholesterol diet. If you are in doubt about the kinds of foods to eat, we suggest you consult your physician.

•

Are there any differences between sour cream, buttermilk, and yogurt?

These dairy products have only one thing in common—they are formed by the action of a bacterial culture on milk or cream. The difference lies in the type of milk product and cultures used to form these mixtures.

Cultured buttermilk is produced by coagulating skim milk with mixed cultures of bacteria; yogurt is made from concentrated whole milk mixed with a bacterial culture; sour cream comes from mixing cream and a bacterial culture.

The cultured products do not differ much in nutrient content from the initial starting materials. Yogurt contains nearly twice as much protein, calcium, and phosphorus, a little less fat but about 40 percent more calories than whole milk, since it is made from a concentrated milk. Buttermilk would have the same value as non-fat milk, and sour cream the same value as cream.

•

Is there anything wrong with substituting the artificial breakfast drinks for orange juice in the morning?

The so-called "artificial" breakfast drinks contain nothing harmful. They usually consist of water, sugar, citric acid, artificial flavoring, and may have vitamin C or other vitamins added. These beverages are not a complete substitute for the natural product. If (*Continued on page 76*)

Doctor White is Secretary of the Council on Foods and Nutrition of the American Medical Association. The letters reprinted in this column are representative of the numerous inquiries he receives and answers each month.

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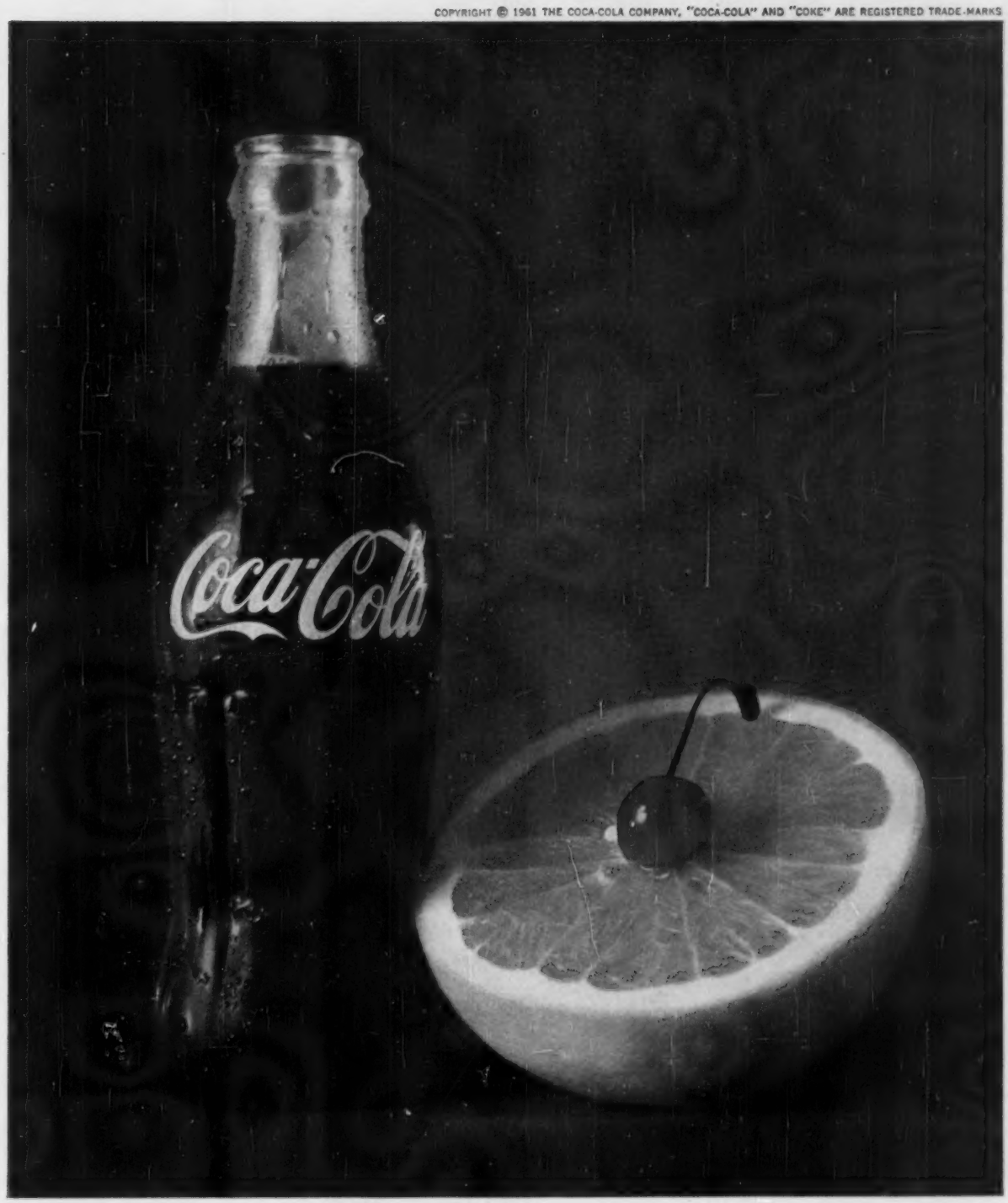
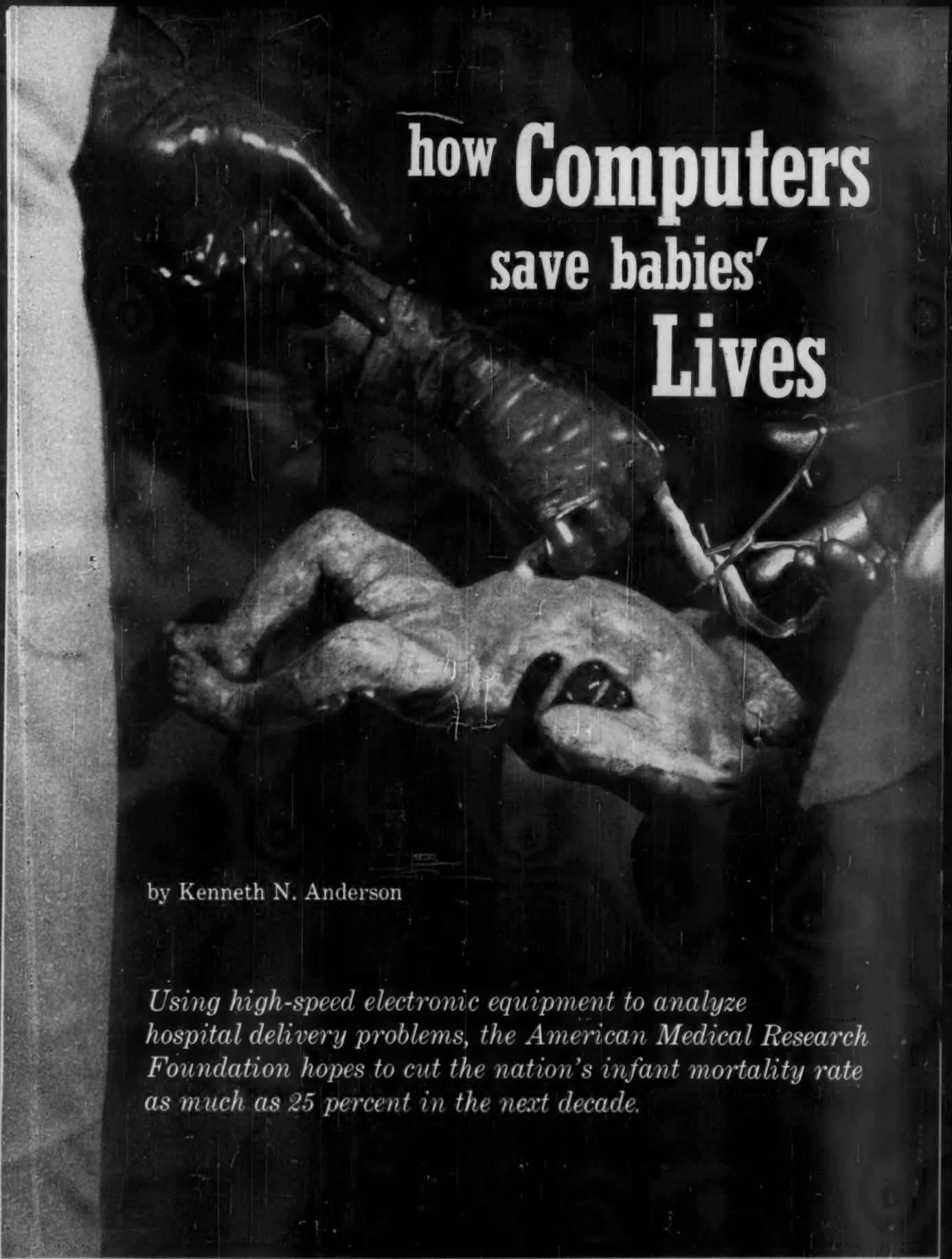


Coca-Cola, too, is compatible with a well-balanced menu. As a pure, wholesome drink, it provides a bit of quick energy... brings you back refreshed after work or play. It contributes to good health by providing a pleasurable moment's pause from the pace of a busy day.



how Computers save babies' Lives

by Kenneth N. Anderson

Using high-speed electronic equipment to analyze hospital delivery problems, the American Medical Research Foundation hopes to cut the nation's infant mortality rate as much as 25 percent in the next decade.

IN THE FALL of 1946, an intense young doctor in Philadelphia returned to his office after a staff meeting at a nearby hospital. It was a routine meeting. On a scratch pad in the doctor's hand were notes about the subject discussed: the loss of another baby in the delivery room.

The physician pulled open a drawer of his desk. It was partly filled with notes from similar staff meetings. He spread the scratch pad notes on top of his desk and the cases turned through his memory like the riffled pages of a book—the baby that didn't get enough oxygen during delivery, an unsuccessful breech delivery, a premature baby too small to save.

The post-war baby boom, later dubbed the population explosion, had started and the doctor's scratch pad notes were accumulating rapidly. In other parts of the nation, other physicians reviewed their own delivery problems. They searched for answers, for subtle causes that perhaps were overlooked in the busy excitement of bringing a child into the world.

Other events, meanwhile, occupied the attention of the nation. The recently mustered out World War II veterans were entering college or returning to their jobs. Housing was scarce, wartime price controls were being lifted, and the Nazi hierarchy was on trial in Nuerenberg. Army engineers were testing captured German V-2 rockets and nuclear weapons were being tested at a Pacific atoll called Bikini.

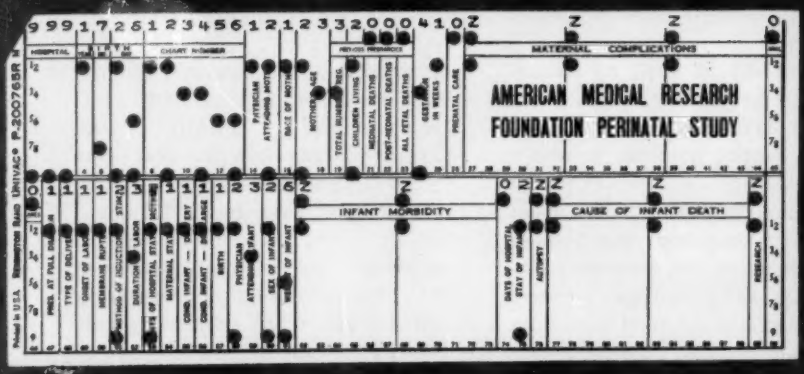
But, in another part of Philadelphia, at the same time, two men worked late in the basement of a laboratory building on the University of Pennsylvania campus. The men, John W. Mauchly and J. Presper Eckert, Jr., were working with long black metal boxes which bristled with radio tubes. When the thousands of vacuum tubes were wired in proper sequence they could manipulate electrical impulses which could be translated into numbers. The device was called ENIAC (for Electronic Numerical Integrator and Computer) and was the first electronic computer. Built for the Army to calculate firing tables for guns, ENIAC could solve in 30 seconds trajectory problems that required at that time 20 hours of figuring, using conventional office calculating machines.

Designed originally as a war weapon, the electronic computer quickly became an instrument for the betterment of mankind. From ENIAC evolved BINAC (adapted to the binary system of mathematics) and, soon after, UNIVAC (for Universal Automatic Computer). UNIVAC was delivered in time to analyze the 1950 U.S. census. Fifteen years after the birth of ENIAC, electronic computers had become an aid to births.

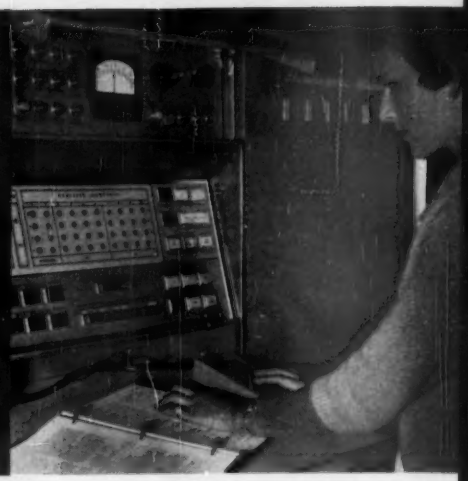
During the years in which electronic engineers were devising more compact and more reliable solid-state computers, with postcard-size plastic printed circuits and transistors, more doctors in more hospitals were making systematic studies of delivery room problems. From notes on scratch pads, the physicians advanced to card files. From their persistent study, the pediatricians and obstetricians, along with other hospital staff members, began to detect the kinds of patterns they were seeking.

One doctor, for example, might have a seemingly uncommon breech delivery with forceps. But he could be unaware that another doctor in the same hospital had the same infrequent problem. And both might be unaware that doctors in another part of the city were having that problem. If all the information concerning the same but separate problems could be compiled and compared, perhaps more babies could be saved.

The idea spread with the quiet enthusiasm that frequently marks



On punch cards, like the one above, detailed information about mother and child is recorded in alpha-numeric code.



Control center of computer operation is processing unit which can handle 25,000 bits of information per second.

such scientific effort. There was no fanfare, there were no headlines. But the study was beginning to pay off. The mortality rates in the maternity wards were dropping. One metropolitan hospital which had been losing 34 of every 1000 babies was pushing its mortality rate down to about half the original figure!

But the study was still being conducted on a small scale. The pioneer physicians in this effort estimated that if they could reduce the number of baby deaths nationally by as much as three per 1000 births, nearly 15,000 babies could be saved each year. They knew also that hand counting on scratch pads and file cards would not provide the breakthrough needed. Then a group of physicians decided to take the big step. With the help of a grant from Mead Johnson Laboratories and money from their own pockets, the doctors rented a small Remington Rand card sorter.

The results of the small-scale investigative project were encouraging. The concept grew stronger that the way to solve the problems of childbirth was to analyze all the information recorded by the hospital staffs at the time of delivery. The information could include the age of the mother, the number of weeks the mother was pregnant, the type of anesthesia used, the weight of the child, and the number of days of hospital stay for the infant and mother. But the information would have to be analyzed for the individual hospital. If one hospital had an anesthesia problem, for example, the data would be diluted by pooling that information with data from other hospitals, and the problem would not be solved. But if the hospital with the problem could compare its record with other hospitals, the troublesome factor might be pinpointed.

In 1959, the project was turning ripe. The experience of the doctors who had pioneered in the study of delivery room problems proved that data from hospital records could be analyzed rapidly and reliably by modern data tabulating methods. The doctors had learned, also, that such studies were valuable in two ways. They had immense value in medical research. For example, the effectiveness of a new drug could be checked literally on a moment's notice by feeding into the computer all of the data supplied by doctors who had used the drug on patients. Another important value would be developed at the hospital staff level where the results of computer studies could be used as teaching tools. Students, interns, and veteran staff members as well, would have a concrete basis for self-evaluation of techniques and drugs used.

Groups of doctors gathered in various cities—Boston, Chicago, San Francisco, Denver, Philadelphia—to discuss methods of expanding the program to analyze the data of every birth in the nation. Since there are more than four million births each year, the undertaking would be an expensive and time-consuming project. At the same time, the doctors wanted to develop the nationwide study as an independent scientific project.

The program was presented to the American Medical Association at its 1960 meeting in Miami Beach, Florida. It was agreed that the American Medical Research Foundation would provide a grant of $45,000 for a one-year pilot study of 100,000 births in 37 states. Computer equipment was made available without cost by Remington Rand Univac Division of the Sperry Rand Corporation.

An advisory committee was formed to "ride herd" on the pilot study and report on its progress to the American Medical Association. Members of the advisory committee included some of the doctors who had been vitally interested in the deaths of fetuses and newborn infants back in the days when records were kept on scratch pads and file cards. Philip S. Barba and Sydney H. Kane, both of Philadelphia, were named chairman and director, respectively, of the advisory commit-

Roll of magnetic tape, in hand of Dr. Sydney Kane, holds all of the information contained in 90,000 punch cards.

Data on code sheets received from participating hospitals is transferred to punch cards by a keypunch operator.

tee. Other members of the all-physician committee were R. B. Chrisman, of Coral Gables, Florida; W. L. Crawford, of Rockford, Illinois; James F. Donnelly, of Raleigh, North Carolina; Harold S. Morgan, of Lincoln, Nebraska; Howard A. Nelson, of Greenwood, Mississippi, and Philip F. Williams, of Bala Cynwyd, Pennsylvania.

Known as the American Medical Research Foundation Perinatal (around the time of birth) Study, the goals of the project were these: (1) to encourage physicians and hospitals to maintain good records; (2) to provide a technique useful in investigating problems in the perinatal period; (3) to encourage physicians to recognize the value of statistical studies; (4) to encourage self-analysis and evaluation of techniques, procedures, and end results at the local hospital level.

"With the achievement of these aims," the committee solemnly pledged, "there will result a reduction of mortality and morbidity rates plus an over-all improvement in maternity and nursery care."

The announcement was modest and conservative in a manner typical of medical scientists. Actually, the potential of the program was tremendous. If a group of doctors and a UNIVAC computer can save the

(*Continued on page 84*)

What Can You Do to Help Save Babies?

THE NON-PROFIT American Medical Research Foundation depends upon contributions from physicians and corporations, as well as the general public, to continue its research into the causes of reproductive failures—the loss of children before, during, or after birth. The present cost of compiling and analyzing data about a single birth is approximately one dollar.

Every person who is a potential parent, grandparent, aunt or uncle will benefit from the AMRF Perinatal Study. If you wish to contribute, please send your check, cash, or money order to:

American Medical Research Foundation,
535 North Dearborn Street,
Chicago 10, Illinois

Contributions to the American Medical Research Foundation are tax deductible under Sec. 501 (C) 3 of the United States Internal Revenue Service Code.

Sydney Kane, M.D., director, at right, confers with business manager Frank McPherson about plans to expand the Perinatal Study program during the next year.

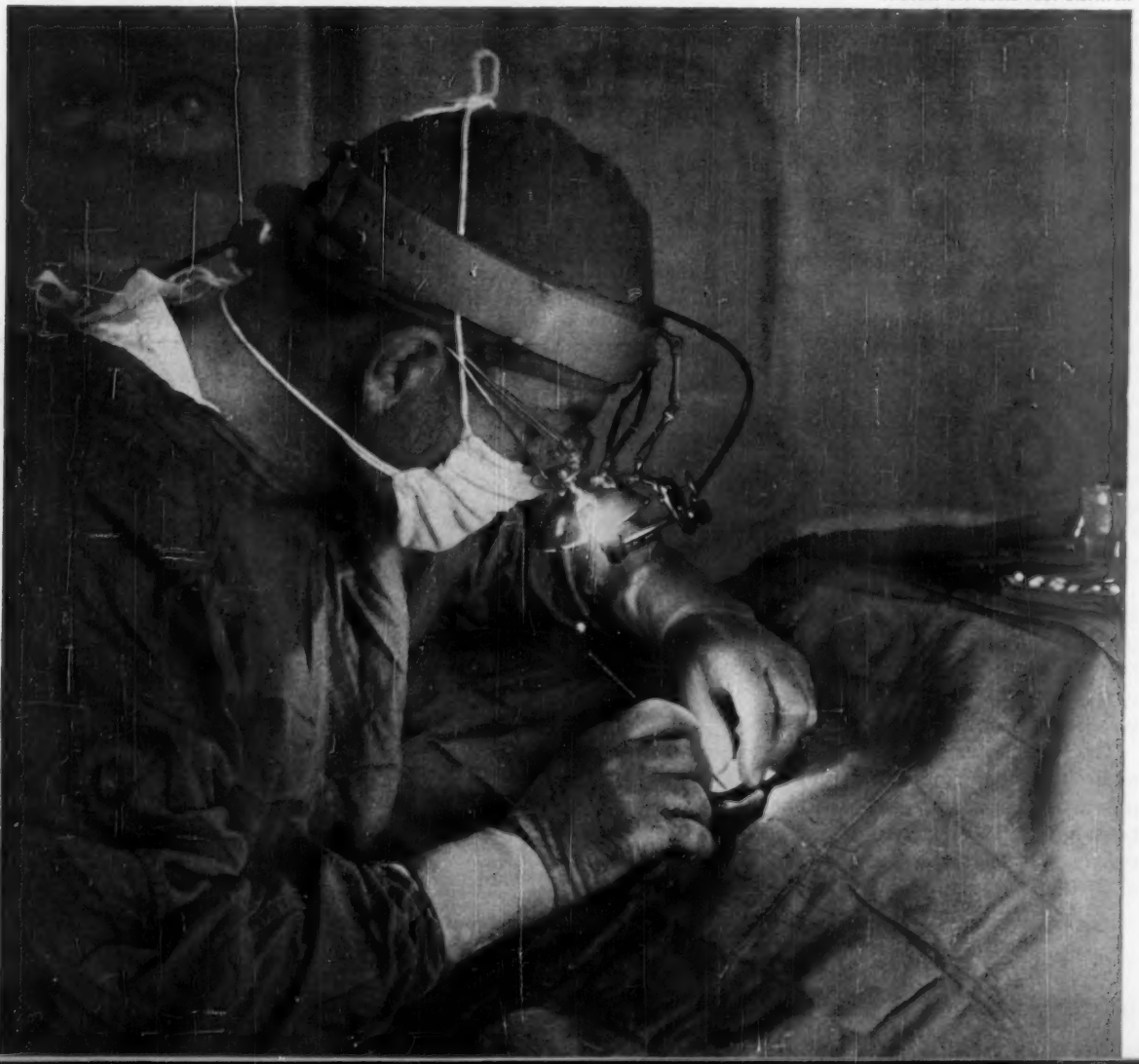
by ROBERT O'BRIEN

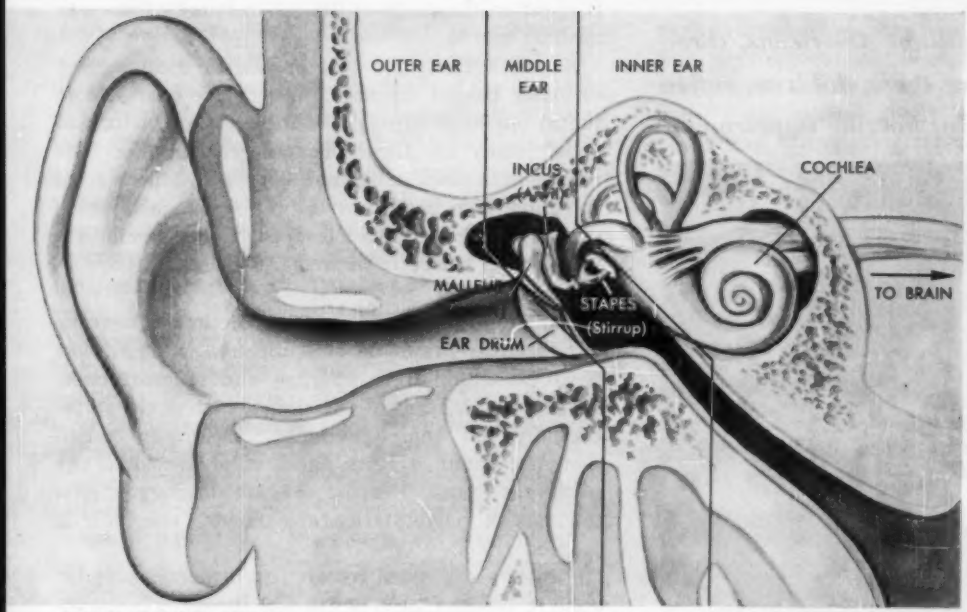
How Science Is Breaking the "Silence Barrier"

Remarkable advances are being made in restoring sound to the silent world of the deaf. Electronic testing aids and laboratory tools are helping, but most dramatic of all is the development of microsurgery.

In one form of deafness, otosclerosis, microsurgery to replace the stapes, a small bone in middle ear, is successful 9 times in 10. Surgeon wears eyepieces for magnification. Light is directed into small funnel inserted in ear canal. Access is through incision about half inch long in the ear canal. There is no external incision.

PHOTOS: ST. LOUIS POST-DISPATCH





DRAWING BY RAMONA MORGAN

In the normal hearing process, sound waves cause ear drum to vibrate, setting middle ear bones in motion. Stapes transmits motion to fluid within the cochlea, a coil-like bone. Waves in fluid send nerve impulses to brain. At right, the plastic tubing which replaces the stapes is shown fitted over end of common straight pin.

A 47-YEAR-OLD Detroit housewife had been mildly hard-of-hearing since the age of 14. Last year, her hearing loss took a turn for the worse. Efforts to use a hearing aid proved unsuccessful. Embarrassed in public, unsure—indeed, unsafe—in the street because she couldn't hear traffic noises, and cut off from normal communication with friends and family, she tried to adjust to the strange, solitary confinement of the deaf.

It was a shattering experience. She lived in a nightmarish world where people's lips moved, and no sound came forth; where a glass broke silently; where children's laughter was a noiseless grimace; where she never heard anything at all but a faint rushing, like a distant, incessant waterfall, in her ears.

An otologist (ear specialist) diagnosed her trouble as otosclerosis, a common cause of deafness that results in a bony overgrowth of the stapes, a tiny bone in the middle ear, and prevents it from conducting sound waves to the brain. A few days later, he gave the patient a local anesthetic, and performed an operation called a stapedectomy—a simple procedure in microsurgery. Deftly, he worked loose the stapes, which the disease had "frozen" solid—a condition known as otosclerosis with complete stapes fixation. Called the stirrup because of its shape, the stapes normally vibrates and thus transmits sound waves to the brain. Now the surgeon removed it. Finally, he fixed in its place a stainless steel filament one-fifth of an inch long, to restore sound conduction. The operation—as in nearly 90 percent of all stapedectomies—was a success.

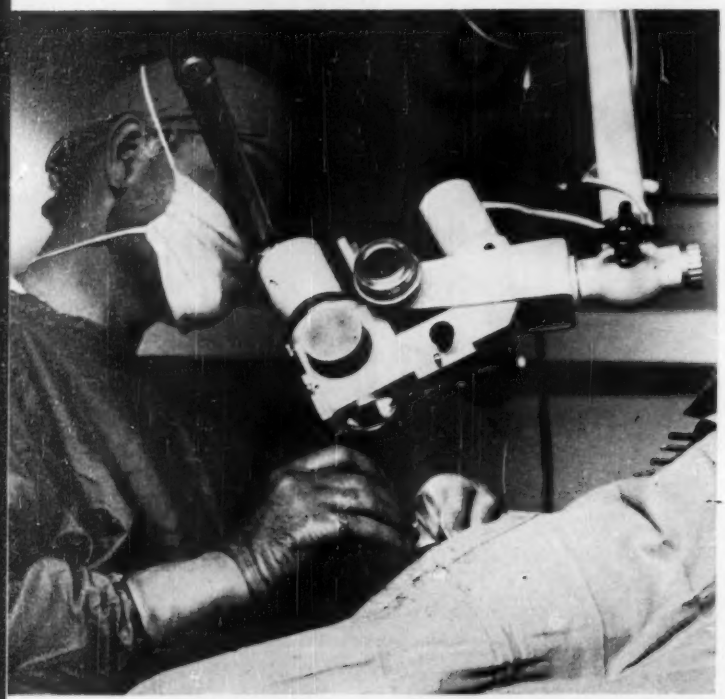
Usually these patients hear immediately after surgery, and often come out of the operating room crying with happiness.

They are among the lucky ones whose hearing problems can be corrected surgically. An estimated 15 million Americans suffer from some degree of impaired hearing, perhaps a third of it due to otosclerosis, a progressive condition which usually begins in early adulthood. Infections, congenital defects, ear injuries, occupational noise, and other causes account for the rest. At least three million sufferers are children, four out of five of them afflicted before they are five years old.

The amazing fact is that this invisible handicap accounts for 25 percent of the nation's non-institutionalized disabilities. It is America's Number One physical impairment.

And no wonder. It has been estimated that less than half our states provide adequate hearing tests for public school children. Kindergarten and lower grade pupils are often classified as dull, emotionally disturbed, or even mentally retarded, when the tragic fact is they can't hear well. By the time parents and teachers learn the truth, damage to the children's ears may be permanent. Furthermore, few general practitioners and pediatricians are trained to treat or diagnose hearing loss: comparatively little time

An estimated 15 million Americans, three million of them children, suffer from some degree of hearing impairment.



As he replaces the stapes with tiny piece of plastic tubing, which fits over end of the incus, another tiny bone, the surgeon uses illuminated 10-power microscope.

Patient in soundproof booth gets hearing test, including sounds and words at various tone levels, volumes.

is spent on the study of the ear in today's four-year medical course.

Research funds for this branch of medicine lag seriously behind the need. Why? The deaf seldom tug at our heartstrings, like the blind, or victims of polio. Many use inconspicuous hearing aids. The rest seem to manage without help. They shrink from attention. We pass them in the street, and never realize that they are handicapped. Our contributions go to other better publicized causes.

NEVERTHELESS, many adult victims of hearing loss, and parents of hearing-impaired children, now have cause for fresh courage and renewed hope. Dramatic new surgical techniques, such as the stapedectomy, are being developed. Electronic instruments, capable of tests never before possible, are being put to use. Hearing aids are improving. New methods in rehabilitation are showing encouraging results.

"There's still much research to be done," says Dr. John R. Lindsay, head of the department of otolaryngology at the University of Chicago, "but we have come a long way. More advances in the prevention and treatment of deafness have been scored since World War II than in all previous medical history."

Of all our sense organs, only the eye is as complex, as finely balanced as our hearing mechanism. Many things can go wrong. The two major types of hearing impairment are conductive deafness, and perceptive, or nerve, deafness. A combination of the two is called mixed deafness. A rare fourth type—psychogenic, or hysterical, deafness—results from a blacking-out of hearing centers in the brain. It is usually treated by psychotherapy.

Conductive deafness occurs when sound waves are unable to reach the inner ear. It may be caused by anything that obstructs sound waves in the ear canal, or deadens vibrations in the middle ear; foreign objects, excessive wax or liquid, otosclerotic bone growth, perforations of the ear drum, breaks in the chain of three tiny bones (the hammer, anvil, and stirrup) along which vibrations travel. Or it may stem from infectious swelling of middle ear tissue.

SUCH interference, however, seldom causes complete deafness. (Only about 109,000 Americans are considered totally deaf.) One reason is that skull bones themselves conduct vibrations to the middle ear. Victims of conductive deafness frequently hear well over the telephone because the receiver is clamped to the big temporal bone encasing the ear, but they have trouble hearing normal conversations.

In perceptive, or nerve, deafness, the outer and middle ear function normally, but certain vibrations

can go no farther. Circuits to the brain are out of order. What's wrong? Damage, in most cases, to nerve endings of the inner ear, fibers of the auditory nerve, or hearing centers of the brain itself. Causes vary. They include loud noises, head injuries, tumors, and diseases, such as arteriosclerosis, that affect the brain. Infants born to mothers who contract German measles during the first three months of pregnancy may develop nerve deafness. Still another type, called presbycusis, appears to be part of the aging process. It commonly afflicts persons over 40.

Nerve deafness generally results in impaired hearing of high frequency sounds—sounds formed by a relatively high number of cycles, or vibrations, a second. In conversation, speech tones frequently missed by the nerve deaf are p's, k's, t's, hard c's and g's, and d's. They may, for instance, hear "gain" as "-ain," "call" as "-all," "down" as "-own." They complain that their friends or relatives mumble. "I can hear you all right," they say, "but you're not making sense."

Because bone conduction is of little help in nerve deafness, victims hear poorly over the telephone, and may miss vital words and phrases. Their own voices sound faint; unconsciously, they speak more loudly than necessary. They often withdraw from society; some become suspicious and hostile.

SINCE nerve damage cannot be repaired, nerve deafness presents serious obstacles to successful medical or surgical treatment. But Army and Navy specialists worked wonders in rehabilitation with servicemen deafened by shellfire and explosions during World War II. As a result of their new techniques in lip-reading, speech analysis, and auditory training, the nerve deaf today, particularly children, stand a better-than-even chance of overcoming their handicap.

New, creative, classroom tools—tape recordings, educational television—are helping the nerve deaf to a better grasp of pronunciation and language, to a working interpretation of sounds that they *can* hear. Programs of this nature are being conducted in schools, and in some 350 speech and hearing centers operated by chapters of the American Hearing Society, hospitals, universities, medical schools, and other agencies.

In many instances, rehabilitation of the adult handicapped pays off financially as well as socially. A U.S. Department of Health, Education, and Welfare survey a few years ago reported on 2500 hard-of-hearing workers who earned $1,610,000 the year before rehabilitation. The first year after auditory training, their total income shot up to $5,684,000, an increase of 253 percent.

Perhaps the most dramatic advances in the fight against hearing loss have been made in microsurgery. The development of 40-power binocular surgical microscopes and of minute cutting tools enables surgeons today to work freely in the cramped galleries of the ear. Through microsurgery, using new techniques in tissue grafts, they are able to restore hearing to patients whose impairments a few years ago were written off as hopeless.

Another brilliant combination of research and technical skill is the stapedectomy. This new and bold technique was perfected by Dr. John J. Shea, Jr., of Memphis, Tennessee. After removing the stapes, he cuts away the otosclerotic bone growth. Next, he grafts over the oval window of the inner ear a section of vein tissue from the back of the patient's hand; this serves as the stirrup's footplate. Finally, he fastens in place a minute length of polyethylene tubing, as a plastic substitute for the stirrup itself.

A widely accepted variation has been developed by Dr. Harold K. Schuknecht of Massachusetts' Eye and Ear Infirmary, who operated on the Detroit housewife. Doctor Schuknecht employs soft tissue from the ear lobe for the graft, and stainless steel wire, rather than plastic tubing, for the prosthetic substitute. The operation leaves no scar. Patients are usually up and about within 48 hours. Age presents no special problem; in one West Coast medical center successful stapedectomies have been performed on patients from 14 to 82.

Ear surgeons have also developed a daring procedure for the treatment of conductive deafness from causes other than otosclerosis. Called tympanoplasty, it serves a double purpose: treatment of middle ear disease, and, through plastic surgery, the reconstruction of the delicate middle ear mechanism.

A serious and sinister cause of conductive deafness, particularly in children, is a chronic middle ear and mastoid infection. It can be brought on by scarlet fever, measles, allergies, head colds, and other respiratory ailments. It is frequently kindled by diseased adenoids and tonsils. The middle ear becomes inflamed. Its mucous membrane lining swells. Infectious fluid collects behind the ear drum and eventually may perforate it. Whether or not a perforation occurs, the movement of the ear drum is inhibited and a hearing loss develops. Common symptoms are a "running" or draining ear, and a loss of hearing.

If attended to immediately, "chronic ear," as otologists call it, can be controlled or cured. But parents sometimes delay treatment on the chance the disease may "go away" by the time the child reaches the age of seven or (*Continued on page 87*)

How the Guidance Quacks Work on Your Worries

by WILLARD ABRAHAM, Ph.D.*

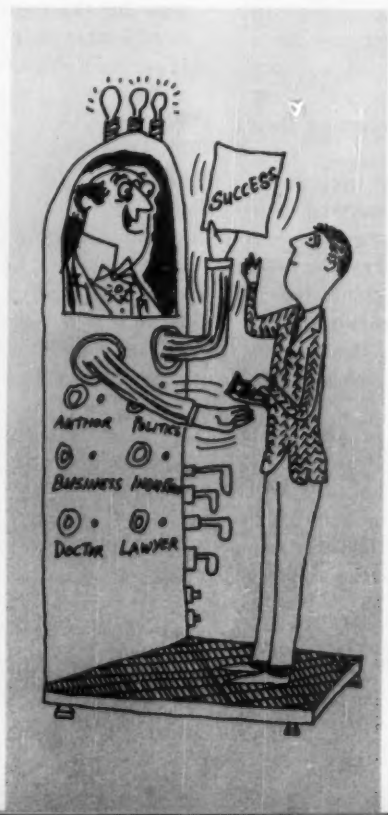
JIM H. worked his way through college with a night job in the post office. It didn't pay much, but it covered tuition, books, room, and board. Things eased up during his last year in school because he got married and had a working wife to help make ends meet. They agreed to put off starting a family until he was out of school and had higher earnings.

But here's the hitch: At no time during college did he think in concrete terms of what he would do when he was graduated. He had a major in English and a minor in history because he enjoyed both of them, but he never considered whether they would help him earn a living. Nor did anyone inside or outside the college offer a helping hand.

"I needed guidance, needed it badly," Jim said. "But I didn't realize how important it was until I got out of school. I continued working at the post office, and when Mary became pregnant I was glad I at least had that job. One day I saw an ad for a counseling service that made big promises about helping me choose and find *the* job for me. So I went up to the plush office, signed a contract, and paid a fee before I received any help at all. We had to dig into our hard-earned savings to do it, too.

"That was five months ago. The baby is due any day now, I'm still at the post office nights, and I'm sure the money and promises are gone for good. Boy, was I naive!"

Mrs. Rose T. made the same kind of mistake, but for a different reason. Here's how she tells it:



"My husband and I weren't getting along at all—fighting day and night. I just couldn't stand it any more. But I didn't know what to do or where to turn, and I was too embarrassed about the whole thing anyway. Then I looked in the phone book, and found a marriage counselor listed, went week after week, and paid each time. How much? I'm ashamed to tell you! He never asked to see my husband, never indicated when the so-called counseling would be finished, and never gave me any real help at all. He had a 'Doctor' in front of his name, but I never did find out what kind of doctor or from where the degree came."

These stories show how foolish people can be when they need help. The unfortunate part is that the solutions caused more problems than they solved.

We all have questions and problems related to jobs, marriage, school. Many times we feel that others can solve our personal problem better than we can. An outsider may be more objective. He may have gone through the same kind of difficulties. Or he may have special training.

But too often there are unqualified people just waiting for us to join the sucker trade in our moment of crisis, when all we want is answers—and the simpler, the better. When our need is great, our resistance to

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* Chairman, Department of Special Education, Arizona State University, and author of the book, *Common Sense About Gifted Children.*

"I ought to know about marriage—I've been married six times!"

subtle pressures may be low, and it is at this time we have the greatest need to be careful.

Sound guidance is based on something more substantial than a sincere question quickly followed by a pat answer. It attempts to help a person help himself, to lead him through a maze of facts, fancy, and fallacy. It encourages him to make his *own* final decision, the one with which he alone will have to live. Whether the problem is personal, educational, or vocational, the hazards are similar, and if you're not on guard against them, the results may be disastrous. They can involve loss of money, wasted time, and emotional upheavals.

Thousands of people in recent years have learned too late how easy it is to become involved in guidance fakery, and how difficult it is to come out unharmed.

The main hazard is the charlatan or quack, the one with the stock answer for any problem, the "expert" with the nickel-in-the-slot technique which is no more sound than your fortune from the scale where you weigh yourself. Your gullibility and his shrewdness are a dangerous combination.

To avoid being taken in by persons with inadequate backgrounds, inefficient methods, and unprofessional approaches, these 10 warnings can be used profitably:

1. Don't depend on "systems" that guarantee results—astrology, character analysis, handwriting analysis, numerology, palmistry, phrenology, physiognomy. Some of these are enjoyable pastimes, but hardly provide a scientific basis for solving an important home or job problem. Interpreting head bumps and hand lines can be fun as a party game—keep it at that and you'll be on safer ground.

2. Don't accept guidance by mail. A personal approach is necessary. There is no guarantee that direct contact will bring a good solution, but without it you can be sure the results will be unsatisfactory.

3. Don't accept a ready-made formula. If your "adviser" gives answers that sound as though they would fit dozens of other people, start preparing yourself for the fact that you've been taken. A professional person in this field is never satisfied with a report so vague that he could have written or spoken it without ever having met you. Nor

will he provide answers that are so specific that you're expected to accept them without question.

4. Don't trust the counselor whose promises, the first or second time you've seen him, are definite or *too* satisfying. They may be part of the come-on. He may feel he has a sucker on the hook and his smooth manner may bring it in. But your caution may beat him at his game.

5. Don't be a victim of high-pressure advertising. Whether it comes by way of newspapers, magazines, or the telephone directory, you have to be on guard against the implied professionalism and promises that may sound so good and mean so little. Just as in medicine and dentistry, the competent practitioner needs no such means for building a reputation and attracting clients.

6. Don't sign anything without reading it thoroughly. In most cases if you do give it a careful reading, you won't sign it. Rarely will a reputable counselor ask you to sign anything. If he requests your name on a contract, or asks you to "assure" so many consultations, consider yourself warned that you're close to danger and fakery.

7. Don't fall victim to the man with a combination that is sure bait for the gullible: a doctoral degree from a foreign university and an accent that rivals Charles Boyer's. Both *may* be legitimate, but it's necessary that your reason for seeking his help be based on something more substantial.

8. Don't assume that one test can give a dependable answer on which to base future action. As scientific as it sounds, and as helpful as psychological and other tests can be as *part* of a full analysis of an individual and his problems, each test is limited in its value. One test as a basis for advice and decisions is usually questionable. No reputable guidance person or psychologist would restrict himself that much in helping evaluate your problems.

9. Don't be trapped by the test-happy individual. Here the problem is too many tests instead of too few. We're deep into a scientific era, and many of us assume exactness and helpfulness are proportionate to the number of tests to which we're exposed. They sound so professional, and after all, most of us don't pretend to be well-informed on the subject. The competent counselor uses devices cautiously, and is careful to interpret their results in layman's language. The amount of fraud is sometimes related to how obscure the test interpretations are.

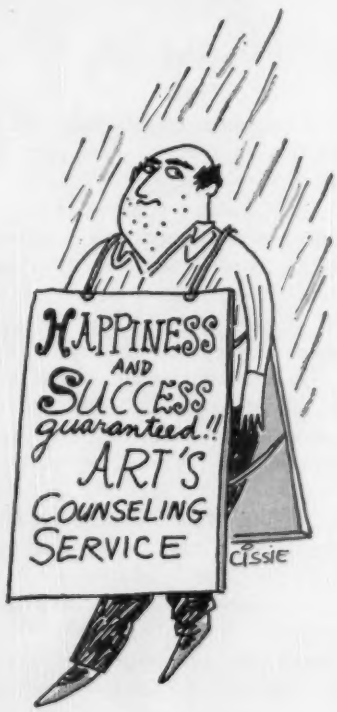
10. Don't depend on a counselor whose library related to the kind of problem you have seems inadequate or even non-existent. Of course, it isn't necessary that he refer to his books if they happen to be in the office where you are interviewed; in fact, if he were to do so very often it might be disconcerting or an outright indication of his ineptness for the task he's taken on.

The pseudo-scientific approach and the false promise are giving a responsible, honest, dependable profession some hard times, and have brought about accusations that are almost entirely unearned. Just as in any other professional field, guidance quacks are especially dangerous because they tap the physical, emotional, and financial resources of human beings.

What are the major parts of sound guidance and counseling? How can you tell whether your help is coming from a good source?

The qualified guidance person has a strong academic background in the area where he proposes to provide assistance. If that field is vocational guidance, his own education should include psychology, educational and vocational information and guidance, economics, and a knowledge of the labor market. His work background will include some combination of the following: industry, teaching, social work, church work.

His college or university degrees will be from reputable institutions, and he should be a member of a recognized and respected professional organization related to his work. He should obviously be successful in the field where he professes to be an authority, whether



it's the world of occupations or the marriage arena!

If he is part of an agency, check to see whether (1) it is recognized by appropriate educational institutions (colleges, universities, state departments of education, various related state boards), (2) it is endorsed by professional organizations, and (3) its board of directors includes persons of stature and responsibility.

Certain professional groups publish directories of qualified persons or organizations. For example, the American Personnel and Guidance Association, Inc. (1605 New Hampshire Avenue, N.W., Washington 9, D.C.) regularly issues a directory of vocational counseling agencies. Your local library can probably provide you with this as well as other directories which can save you money, time, and trouble.

Other sources of information are the Better Business Bureau, Chamber of Commerce, schools, colleges, universities, and government agencies (Veterans Administration or employment service).

Anyone who seeks help from strangers, and expects to pay for it, should know some of the simple principles of the guidance field. They can be a safety valve in this touchy business, and they're easy to understand. For example:

1. There is no one best job in the world for each person. If there were only one best job, it would be particularly unfortunate for a fellow aspiring to forestry in an area that's treeless, or for a potential actor who for some reason is restricted to an isolated small town. Each of us is qualified for many jobs.

2. Guidance is a procedure that takes time and growth on the part of the person being counseled. It can't be done within an exact pre-determined period.

3. It requires follow-up, a permanent record, and an individualized written report. No matter how simple the problem, such factors are essential.

4. Vocational guidance has many ingredients. What one does with his entire life requires a thorough study of the individual, full knowledge of occupations, and a careful matching of the two. Knowing one's self involves all of these: tests, interviews, and summaries, achievements, aptitudes, and physical, social, and economic assets and liabilities. Sounds like a lot of information, doesn't it? It is, but the major decision of one's life should hardly be made with any

less. In fact, that's only *one* side of the picture—*your* side—and the knowledge of occupations is just as demanding.

5. Competent guidance helps us avoid decisions based exclusively on emotions rather than facts. There is room for both, of course, for no one wants to be a person who acts like a machine. But still, it's important that we solve marital problems, select occupations, and resolve other personal issues with more than a feeling, whim, or hope as our sole basis.

Sound guidance and counseling have several important advantages. They can help reduce the number of school drop-outs, marriage breakups, and occupational misfits. They can help provide adequate and skilled personnel for a nation desperately in need of it in the years ahead. They can add happiness to our personal lives.

Numerous studies indicate how unrealistic we often are as we view the future, and guidance can offer some practical assistance. High school graduates frequently expect to enter occupations that they never come close to. Their information regarding preparation, earnings, job duties, and advancement possibilities may have been way off base. Before entering the labor market young people may guess the "middle class" to be in the annual income bracket anywhere from $2000 to $50,000, depending on their own family status and other factors.

We often view marriage through glasses equally tinted by naivete or blissful desire. Counseling can help bring enlightenment and awareness of what demands the day-to-day proximity in a family makes on each member of it.

Advice is cheap, and in many big city parks you can find a man or woman on a soap box eager to give it to you. Pseudo-psychiatrists are a dime a dozen among your friends and co-workers, too. But you usually ignore sources like these for authoritative information and guidance. You know they haven't what it takes to solve your problems.

However, sometimes you may not have caution flags flying when you see a simple name in a telephone book, on a door, or on a letterhead. The very simplicity fails to put you on guard against the dangers of guidance quackery.

Talking through one's difficulties with clergymen, teachers, school guidance personnel, or our own family members may provide solutions for the small ones. More serious problems may require psychiatric help. It's in the broad gray zone between these two extremes that we become fair game for the dishonest and incompetent counselor. That's where the suggestions offered above can help prevent mistakes. END

Eating Well in the Teens

The teen-ager is no longer a child and not yet an adult. His nutritional needs are unique and require special attention.

by GAYNOR MADDOX

Teen-agers need lots of calories to supply their strenuous demands for energy, but uncontrolled snacking that involves excessive quantities of high-calorie foods can result in a tendency to fatness, particularly in girls.

Sweets have a rightful place in the teen-ager's diet, but they should not take the place of a well-balanced meal.

WHAT MAKES an adolescent grow? The food he or she eats. What helps make a young girl look her physical best and a young fellow vigorous? The food he or she eats. What helps teen-age girls and boys adjust to the inevitable tensions, social pressures, and confusions of the child-into-adult years? The food they eat.

Careful studies of the eating habits of American youth between 13 and 19 reveal that a large percentage fail to achieve the daily dietary allowances recommended by the Food and Nutrition Board of the National Research Council. About six out of every 10 girls, and about four out of every 10 boys subsist on diets that should be improved. Translated into flesh, bone, and brain terms, that means that despite the greatest supply of good food in our history, more money to buy it, and dramatic advances in the science of nutrition, millions of our teen-agers are dragging their feet when it comes to eating for better health, stamina, and over-all physical competence.

Widespread surveys of the eating habits of elementary and high school and college students indicate clearly that elementary school children generally eat better than their elder brothers and sisters. The deterioration of eating habits in so many adolescents can have serious results in terms of growth, emotional stability, and preparation for the physical responsibilities of adulthood.

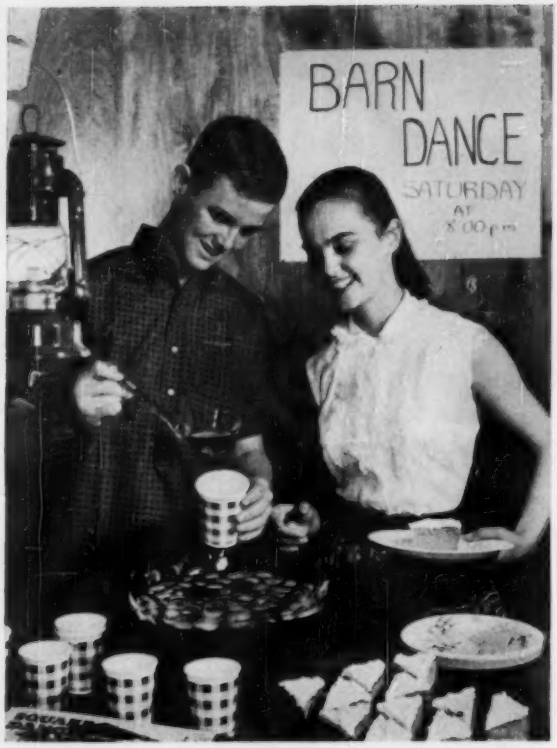
Why are diets of the 13- to 19-year-old group so often less adequate than those younger? Many answers are given. Generally, the adolescent abandons to a greater or less degree his family's eating habits in protest against parental control. The skipping of breakfast is one of the most serious factors. Rarely, when breakfast is skipped or inadequate, does a teen-ager make up that nutritional loss.

Among other reasons are the huge amounts of food eaten as snacks which are often chosen without consideration of nutritive value; the tendency to follow fads in eating, particularly among teen-age girls, whose fear of overweight leads them to bypass many essential foods; the tensions of adolescence; the passion to conform to the eating habits of the gang, even though such habits are based on whim; or teen-age defiance of the advice of educators.

Food habits of teen-agers reflect many other factors. Psychological reasons can cause teen-agers either to reject food or to overeat, according to reports by two distinguished dietitians, co-authors of *Modern Diet and Nutrition,* both of New York University, Henrietta Fleck, Ph.D., chairman, Home Economics Department, and Elizabeth Munves, Ph.D., curriculum director of nutrition. They state: "Finicky appetites are often found in children of upper-income families. However, the more poorly nourished teen-age boys and girls generally come from either low-income families of from large families. Also, a mother of an adolescent who is ignorant of nutritional needs often is the factor in the poor eating habits of the child."

Some of the reasons given by adolescents interviewed are: It's the parents' fault—they are not interested in preparing good meals; it's the fault of the school lunch—the women in charge don't know how to manage.

The breakdown of family life and family eating habits is a major reason, according to Icie Macy Hoobler, Ph.D., of the Merrill-Palmer School in Detroit. Young adults and youths are being forced to seek companionship and food at the corner drugstore where their money scale, based on allowance or meager job pay, is inadequate for a wholesome meal.



The teen-ager who balances his consumption of calories with adequate exercise need have no fear of getting fat.

She quotes an interested and brilliant youth on why his eating habits are poor: "In my own middle-class family, the family can never get together for three meals a day. Each member of the family has his own particular interests and desires which take precedence over our family life and activity. Therefore, each of us goes our own way and pace, within the bounds of his pocketbook."

This youth added that his parents and their friends emphasized individual freedom in social and mental development, even at the expense of regular eating habits and an adequate diet.

Doctor Hoobler quotes another youth on why he and his 18-year-old friends are uninterested in eating better. He said it is difficult for young people in America, with its abundance of food of all kinds the year 'round, to visualize the consequences of poor eating habits and malnutrition. No dramatic signs are obvious, he added, among his classmates or the children he sees on the street. Although he and other teen-agers are aware of malnutrition in the undeveloped countries, this condition has only a passing interest to them and is of no immediate concern.

"Fitness" is a word that appeals to this age group. But with different interpretations, depending on sex. To girls, it means good looks and figure, clear skin, attractive personality, and vivacity—feminine attributes that attract the male.

To boys, on the other hand, fitness in general means physical development, stamina, alertness, and the ability to win in both studies and games. No matter what the interpretation, the amount and kinds of food they eat will be a major factor in attaining the fitness they seek.

Fortunately for teen-agers and parents eager to improve their children's and their own eating habits, many sound and easily understood books and pamphlets on nutrition for the layman are available. "Food for Fitness, or a Daily Food Guide," is one of the best. Prepared by the Institute of Home Economics of the U. S. Department of Agriculture, it will give the ground rules of diet to every teen-ager who wants to look and feel his or her best. This pamphlet will do more for the teen-ager's happiness than any five-cent candy bar, and that is exactly what it costs. Write for Leaflet No. 424, U. S. Department of Agriculture, enclosing five cents, to Superintendent of Documents, United States Printing Office, Washington 25, D. C.

"Food For Fitness" breaks down daily food requirements into four familiar groups of food, and the amounts needed from each group.

Dairy Products

Some milk daily

Children	3 to 4 cups
Teen-agers	4 or more cups
Adults	2 or more cups

Meat Group

2 or more servings

Beef, veal, pork, lamb, poultry, fish, eggs

As alternates—dry beans, dry peas, nuts

Vegetable-Fruit Group

4 or more servings. Include:

A citrus fruit or other fruit or vegetable important for vitamin C

A dark-green or deep-yellow vegetable for vitamin A—at least every other day

Other vegetables and fruits, including potatoes

Bread-Cereal Group

4 or more servings

Whole grain, enriched, or restored

Plus other foods as needed to complete meals and to provide additional food energy and other food values.

Other Foods: To round out meals and to satisfy the appetite everyone will use some foods not specified—butter, margarine, other fats, oils, sugars, or unenriched refined grain products. These are often ingredients in baked goods and mixed dishes. Fats, oils, and sugars are also added to foods during preparation or at the table. These other foods supply calories and can add to total nutrients in meals.

Nutrition scientists caution parents and teen-agers

that although an adolescent can be the same size as an adult, his food requirements remain much greater than the older person's. The adolescent should not be classified physically as an adult. Also, adolescent growth takes place in spurts and it is vital that sufficient nutrients be eaten during these rapid growth periods.

The chart on this page illustrates the difference in recommended daily allowances for calories, protein, calcium, iron, and vitamin C for adolescents and adults.

Calcium, iron, and vitamin C are the three essential ingredients most often lacking in teen-age diets. That means that young people need more milk and dairy products, such as cheese and ice cream, for calcium; more meat, dark green vegetables, and whole-grained cereals for iron; and more oranges and grapefruit and lemons mainly, or broccoli, strawberries, green pepper and cantaloupe for vitamin C.

Calcium: The importance of milk in teen-age diets cannot be overstated. It is the most available source of the calcium needed to develop strong bones in this period of structural growth. The recommended amounts are four or more eight-ounce glasses or cups a day. Part or all of the daily milk allowance can be fluid whole milk, fluid skim milk, buttermilk, evaporated or nonfat dry milk. Cheese and ice cream may replace some of the milk requirements. A one-inch cube of cheddar-type cheese provides the same amount of calcium as two-thirds cup of milk; one-half cup (four ounces) cottage cheese as much as one-third cup milk; two tablespoons cream cheese the equivalent of one tablespoon milk and one-half cup ice cream as much calcium as one-quarter cup milk.

The milk group provides also high-quality protein, riboflavin, vitamin A, and many other nutrients essential to normal teen-age growth and health.

In general, boys are far better milk drinkers than girls. The average girl's indifference to her need for milk is a major nutrition problem.

Iron: Iron is essential to the formation of hemoglobin, which carries oxygen from the lungs to all parts of the body and enables the cells to use the oxygen to burn carbohydrates and fats for energy. The hemoglobin (which cannot be produced without iron) carries back to the lungs the waste product of this reaction, called carbon dioxide, which then is breathed out.

Surveys show that for every teen-age boy whose diet may be inadequate in iron, there are five girls with inadequate iron supplies. Because girls at this age are beginning to menstruate and therefore lose blood, it is imperative that they maintain an intake of iron to compensate for this loss. Furthermore, unless teen-age girls maintain adequate stores of iron at this period, they will find it difficult to do so later when they bear children.

It is easy enough for teen-age girls to get enough iron through a normal diet of familiar foods. Good sources of iron, listed in decreasing order of excellence, are liver, heart, kidney, liver sausage, lean meats, shellfish, egg yolk, dried beans and other legumes, dried fruits, nuts, green leafy vegetables, whole-grain enriched cereals and cereal products (which includes enriched breads), and dark molasses.

The 15 milligrams of iron needed daily by a teen-age boy or girl would be contained in two hamburgers, four slices of enriched bread, a ham or peanut butter sandwich, a serving of broccoli, a dish of oatmeal, two eggs, half a broiled chicken, potatoes, rice, or enriched macaroni. No great eating task for a normally voracious teen-ager.

Vitamin C: The third outstanding inadequacy in youthful diets is vitamin C. Boys and girls have equally poor ratings. They both need some every day because vitamin C cannot be stored in the body for any long period.

The richest, most easily available grocery store sources of vitamin C (or ascorbic acid) are tomatoes, citrus fruits, such as oranges, grapefruit, lemons, limes, and their *(Continued on page 83)*

RECOMMENDED DAILY DIETARY ALLOWANCES
FOOD AND NUTRITION BOARD, NATIONAL RESEARCH COUNCIL, REVISED 1958

	Age 4 Yrs.	Weight Lbs.	Height Inches	Calories	Protein grams	Calcium grams	Iron milligrams	Vitamin C (Ascorbic Acid) milligrams
Boys	13-15	108	64	3100	85	1.4	15	90
	16-19	138	69	3600	100	1.4	15	100
Men	25	154	69	3200	70	0.8	10	75
	45	154	69	3000	70	0.8	10	75
Girls	13-15	108	63	2600	80	1.3	15	80
	16-19	120	64	2400	75	1.3	15	80
Women	25	128	64	2300	58	0.8	12	70
	45	128	64	2200	58	0.8	12	70

Designed for the maintenance of good nutrition of healthy persons in the U.S.A.
(Allowances are intended for persons normally active in a temperate climate)

Cards That Fight Disease

Funds received from sale of greeting cards designed by famous artists furnish milk, medicine, and health services to 57 million children and mothers in more than 100 countries throughout the world.

by JACK HARRISON POLLACK

ONE DAY in 1949, a handwritten message of thanks was scrawled by a seven-year-old named Jitka in Czechoslovakia to the United Nations Children's Fund (UNICEF) in New York. This child, who was helped in her war-devastated village, enclosed a crude though merry colored drawing of five little girls dancing around a maypole.

"It means joy, going round and round," she pointed out.

This unsuspecting child's labor-of-love drawing started something which has been going round and round the world ever since—and spreading joy. It was used as the first UNICEF "Season's Greetings" card.

Since then, UNICEF holiday cards have been drawn by many world-famous artists including the work of those featured on the following pages. These talented painters and illustrators have eagerly donated original designs for the Fund's Greeting Card program.

"I get a bigger kick out of *giving* my picture to such a wonderful cause than in *selling* it at a fancy price," one of the 1961 artists explained.

Why?

Because the proceeds from them are used to battle the disease and hunger which threaten children all over the earth. Every year a new promise of health, hope, and happiness is brought to millions of sick and hungry children by people who buy these greeting cards. Printed in the five official languages of the United Nations, they are sold wherever greetings are exchanged—be it Christmas and New Year's in the Christian world, Chanukah in Israel, the Festival of Lights in India, or the feast following Ramadan in Pakistan.

Today these unique international cards, which furnish milk, medicine, and services to 57 million children and mothers, are sold in more than 100 countries. The reason? Not just their artistic merit. More important, they give purchasers the satisfaction of knowing that they have helped youngsters to grow up healthier. Last year more than 17 million were bought all over the world, providing enough money to equip 23,000 maternal and child health centers.

The funds have enabled UNICEF to help protect European children from tuberculosis, Asian babies from leprosy, North African youngsters from blinding trachoma, South American children from malaria. The proceeds from a single box of 10 cards ($1.25) can guard 50 youngsters against tuberculosis with a vaccine. The funds from two boxes can provide enough penicillin to cure 20 children of yaws, a crippling tropical disease which covers the body, palms of hands, and soles of feet with open sores.

Many of the children in the world face a short, sick, and hungry life. Two out of three live in areas where disease is rampant and medical aid inadequate. Many have never seen a physician in their entire lives.

But today the ignorant, old fatalistic attitude toward disease and death is giving way to new, enlightened medical hope that all of the world's children should have a chance for a longer and healthier life.

A Pakistan hospital official wrote UNICEF: "Since our children and mothers began using your shipments, their ugly sores have stopped. Please send us another case of soap and extra case of triple sulfa."

A grateful little Asian girl who was given milk for the first time, said, "I know what UNICEF means. It is the American word for cow."

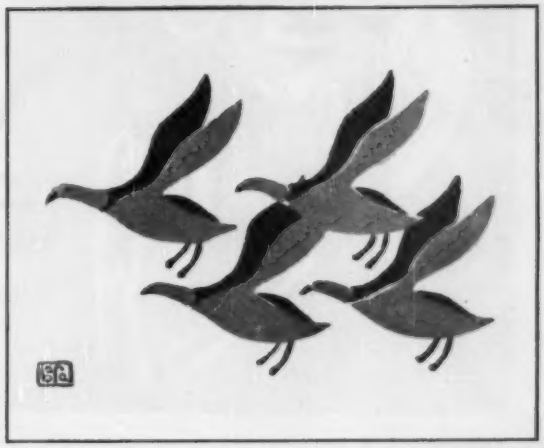
UNICEF cards help free children from disease and hunger in four ways:

1. *Disease Control and Eradication,* combating such scourges as tuberculosis, malaria, yaws, leprosy, and trachoma.

2. *Health Services,* including environmental sanitation, care for handicapped children and premature babies.

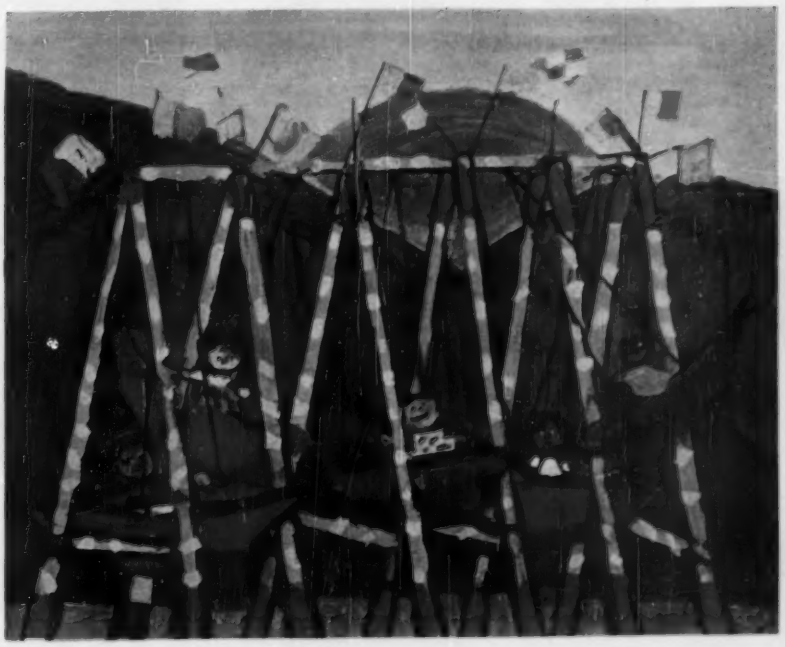
(*Continued on page 76*)

Kananginak, one of the five Eskimo artists, contributed "Arctic Gulls in Flight." He and the other men, Ikaluk, Mingituk, Niviaksiak, and Pootagook, all live in a village on the barren southern coast of Baffin Island in the Arctic Circle.



A gaily bedecked camel gazes at a distant star in this card designed by M. A. Rahman Chughtai of Pakistan, known today as a leading artist of his country. He is descended from a long line of courtiers and architects of the Punjab, one of whom designed the Taj Mahal. This colorful card titled "The Star," was contributed for the benefit of the Children's Fund.

"Swings" is the title of this gay card being offered by UNICEF. One of the five-card series, "A Child's World," it was designed and contributed by the famed illustrator, Andre Francois of France. Born in Rumania 47 years ago, he has become one of France's leading cartoonists and illustrators. In describing this striking series of cards, Francois frankly says, "I have tried to feel like a child and interpret the carefree experiences of the world's happy children, for through UNICEF's work, children everywhere in today's world have a greater opportunity for happy life."



Children and dog playing before an igloo was designed by Mingituk, another of the Eskimo artists. All of their designs are produced in their favorite colors: charcoal grays, black, blue with touches of red on white.

A design contributed by Bedri Rahmi Eyuboglu of Turkey, "The Journey," depicts a woman wearing a yashmak (veil) with two children on horseback. He is an eminent proponent of contemporary Turkish folk art at its best. He comments, "In all ages, men of different climes and creeds have best come to understand each other through their works of art. In the ordeal of our times, art has assumed a new international importance."

"Haven," reproduced from a tapestry by Pablo Picasso which hangs in a delegates' lounge in the United Nations headquarters in New York City. This tapestry is one of his most recent works. Paintings, etchings, ceramics, sculptures, giant murals, and lithographic prints which form part of the permanent collections of world's leading museums tell the long and fascinating story of Picasso's tireless quest for new means to express his love of life. Picasso's earliest works reflect the dramatic realism of the great Spanish painters, but even they betray the restless quality of his revolt against tradition.

Answers to Your Christmas Card Questions

by JACK HARRISON POLLACK

The average American family will send out about 60 Christmas cards this year. Here are answers to the 29 most commonly asked questions about card etiquette.

THIS MONTH, nearly three billion Christmas cards will be exchanged in the United States. In addition to the UNICEF cards on the previous pages, 300 commercial publishers will offer a staggering variety of 40,000 different designs and titles. One card even says, "Merry Christmas from our dog to your dog!"

The Christmas cards you send are a clue to your character, revealing a glimpse of your conscious or unconscious tastes. Americans generally send traditional cards. The most popular designs feature holly and poinsettia, Santa Claus, Christmas candles, winter scenes, and tree ornaments.

Though about $300 million will be spent by Americans on their Christmas cards, every December countless men and women have many unanswered questions about them. Result: The sending of annual holiday greetings—instead of being a pleasant pastime—is too frequently an exhausting, time-consuming headache to many people.

These questions were prepared especially for TODAY'S HEALTH readers, in consultation with etiquette experts, card publishers, and the Greeting Card Association.

How should a married couple sign their Christmas cards?

Just their informal first names—"Jim and Betty," for instance—on cards sent to friends. Your last name is added—"Jim and Betty Walker"—only when more identification is needed.

Whose name is written first—the husband's or wife's?

Whoever signs the card could courteously sign his or her name *last*. If a wife signs the card for herself and her husband, it should read: "Jim and Betty." Or "Jim and Betty Walker."

When the names of husband and wife are printed or engraved, whose come first?

The wife's. "Betty and Jim Walker" is courteous as well as good sense and good taste.

When our child's name is included, what is the correct form?

Then the husband's generally comes first: "Jim, Betty, and Tommy." If you have more than one child, you may also informally sign your card: "Jim and Betty Walker, Tommy and Susie." Or "The Walkers—all four Jim and Betty, Tommy and Susie."

Is it proper to "announce" our baby's birth on a Christmas card?

Yes. You can always informally add a child's birth since last Christmas this way: "And our new daughter, Deborah Leslie, born July 16, 1961."

Is it proper to print or engrave our names rather than personally sign it? *(Continued on page 70)*

ENZYMES:

Chemical Keys to Health and Disease

Without them you could not see these words or turn this page. Though their names are formidable and their functions complicated, enzymes come excitingly alive when you consider their importance to your existence.

by DONALD G. COOLEY

SUPPOSE that some day you have a chest pain and other symptoms that might indicate a heart attack. *Is* it a heart attack? Is part of your heart muscle dying because its blood supply has been shut off by a clot obstructing a coronary vessel? Or do the symptoms possibly arise from a quite different and less serious cause?

Your doctor might take a sample of your blood and examine it for minute amounts of chemical substances that may tell a great deal about the cause of the ache in your chest. Medical technicians are becoming expert "molecule hunters." They look for certain molecules in serum, the amber-colored liquid part of the blood. These telltale molecules bring chemical messages from deeply-hidden parts of the body and help the doctor to make early and accurate diagnosis of coronary thrombosis and some other diseases.

For instance, a patient who has had an acute heart attack produces excessive numbers of certain molecules that can be detected in his serum. Presumably they leak from injured cells and serve as "markers," indicating that part of the heart muscle is dead or dying. Successive tests may give valuable information about the extent of the injured area and the seriousness of the immediate attack. Or, if the molecule "messengers" don't appear, the patient can be reasonably confident that he has not suffered an attack injurious to his heart muscle.

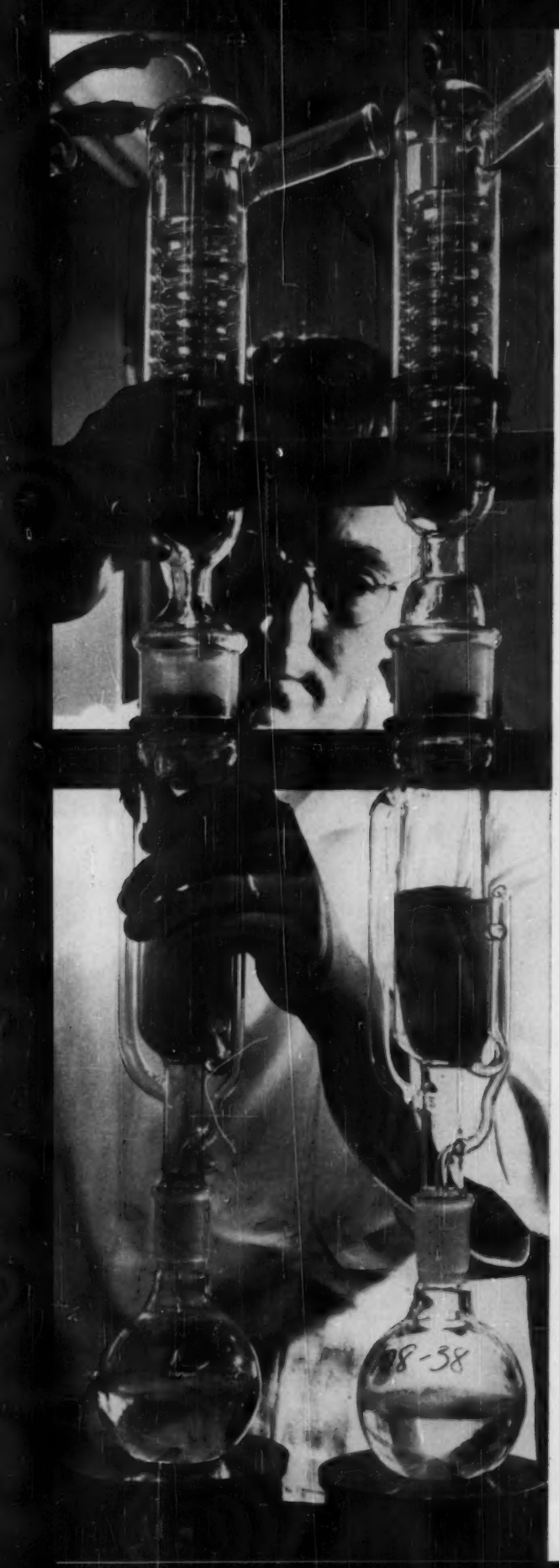
A few tests of this type are already used in clinical medicine and are undergoing refinement. Some of the great family of molecules concerned are used as drugs in treatment of diseases. But present uses are barely beginning to open up a largely unexplored frontier of medicine, promising new therapies and insights into the stupendous activities of molecules that keep living things—yourself included—alive.

A drug that not only helps to diagnose disease, but also reduces black eyes and other swellings, cleans dirty wound surfaces like a gentle chemical scalpel, acts against inflammations, promotes healing, assists in delicate cataract surgery, aids digestion, dissolves clots, liquefies thick secretions that hinder breathing, and stops penicillin reactions, is too fantastic to be credible. Yet there is a class of substances that do all these things and more. They are called enzymes.

We live with, and by, enzymes every instant of our lives. Your body at this moment seethes and simmers with millions of enzymatic reactions of which you are comfortably unaware. Without them you could not see these words, or understand them, or turn this page, or rise in annoyance when the phone rings, or enjoy your latest meal. In short, you would be a mere collection of inanimate atoms.

Prime organizers which transform elemental dusts into molecules of life are enzymes, themselves complex protein molecules. All substances of life are made under the influence of enzymes which endlessly rearrange our molecules in ever-changing patterns at fantastic speeds. Enzymes are catalysts which speed chemical reactions and control the step-by-step sequences of many-linked chains of reactions.

Enzymes are jealous jurisdictional laborers, very choosy about the job they will do, which is why we



need so many of them. The "business" part of an enzyme may be only a small portion of its molecule, an "active site," a precisely shaped "nest" or keyhole into which only the substance that the enzyme acts upon can fit. We may think of enzymes, not too scientifically, as affording cunning surfaces upon which otherwise indifferent molecular fragments can get together in fleeting unions, or fleeting divorces, going on to another enzyme for another evanescent combination—an incessant weaving and raveling of the restless chemical fabrics of life.

Reactions speeded by enzymes could theoretically occur without them. Your breakfast might digest itself by chance collisions of molecules. But it might take 20 to 50 or 100 years—altogether too long to wait for energetic results from ham and eggs. Even a laboratory chemist would need days to "digest" a meal in a test tube with powerful acids, intense heat, and techniques that nobody could stomach. Your enzymes accomplish this so speedily you're ready for another meal in three or four hours.

If all your enzymes did the things they do all at once, you would probably go up in a puff of smoke—or at least would be fatally disorganized. Within a single cell of your body, where enzymes do most of their work, several hundred enzymes may effect anywhere from 2000 to 5000 reactions. Order and speed of flashing reactions must be controlled, else all is chaos.

In a healthy body, enzymes are miracles of automation. Their enchanted molecule-weaving is a sublime triumph of complex organization. The right enzymes must be precisely positioned in space and in relation to each other to perform immutable sequences of reactions upon which life depends. This splendor of order is attained, all evidence indicates, by layers of enzymes woven into surfaces of minute parts of the cell, such as mitrochondria, like the intricate decorative patterns of a rug.

If a single enzyme-thread is missing, or defective, or out of place in this living tapestry, mysterious far-flung effects of disease may eventually appear. Diseases may disrupt sensitive, interlocking enzyme activities and distribute evidence in the body. Thus, enzymes are chemical keys of "breathtaking elegance"—the phrase is that of a noted enzymologist, David E. Green, M.D.—for unlocking secrets of health and disease. Of the very few secrets partially unlocked, use of enzymatic aids in making difficult diagnoses is among the most useful.

Take the case of a man with a suspected heart attack. Whenever a localized area of tissue dies from lack of blood (infarction), levels of LDH (lactic dehydrogenase) enzyme in the patient's serum begin to rise. Medical names for enzymes are formidable indeed, and even their (*Continued on page 66*)

by ***RICHARD DUNLOP***

Down Mexico Way

Cross the Mexican border and you're likely to find bull fights, beautiful cathedrals, bargain shops, and some fine restaurants.

AN ELECTRIC motor whines. The new alpine tram begins its half-mile climb up rocky Mount Franklin, which frowns down upon the Mexican border at El Paso, Texas. Suspended on its taut cables, the six-passenger cab soars daringly over the chasms and upthrust rocks. Finally there is a bump. The cab has reached the summit. Its occupants climb out into a spanking wind which cools the peak, the southernmost in all the Rocky Mountains.

Visitors step inside the mountain-top shelter for a cup of hot coffee. Then, cup in hand, they stroll along the high walkways to study the remarkable panorama of two countries below them. At the foot of the mountain lies one of North America's most strategic passes, *El Paso del Norte,* as the Spanish called it. Through it threads the Rio Grande, muddy and somnolent, separating El Paso from Juarez, Chihuahua, and dividing two ways of life. There the United States ends, and Mexico begins. There are the miniature skyscrapers of El Paso, and there are the bull rings of Juarez.

Today America's sunshine border is at peace. The crunch of explosives from the valley below has nothing to do with border trouble. It is a contractor pushing back the mountain shoulder to make way for a new subdivision. Only a few old-timers remember when stray bullets came winging into El Paso from across the Rio Grande. It is 45 years since Col.

A statue of Christ with outstretched arms, much resembling a cross, looks from a mountain on the rugged border.

PHOTOS: PLYMOUTH TRAVELER, GEORGE MOFFET

PHOTOS: EL PASO SUNLAND CLUB

Take this half-hour alpine tram trip and you will be able to study the panorama of the two countries below you.

In Juarez, immediately across the border from El Paso, you will be thrilled by the sight of beautiful cathedrals.

A few of the children of Juarez are playing games on the outskirts of the city. Beyond them is the bustling sunshine city where tourists may visit fascinating markets and see bull fights.

In El Paso is reconstruction of Old Fort Bliss, major border post, now on site of missile training base. Uniform is that of U.S. Cavalry in post-Civil War period.

For 10 American pennies or 15 Mexican centavos you can ride across the border, the Rio Grande river, in this international streetcar, the only one in North America.

A drum and bugle corps of Mexican army reservists salutes the staute of Benito Juarez, a Mexican patriot.

Tommy Tompkins retaliated for Pancho Villa's fusillade into El Paso by directing his artillery toward Mexico and blowing a hole in the Juarez race track tower.

Farther west along the border, Columbus, New Mexico, slumbers in the sun with only a few bullet-scarred walls to recall the day Pancho Villa's men swarmed across the border and sacked the town. Now Yankee motorists cross the border at El Paso and drive 233 miles to Chihuahua City to see the house of the bandit general on Calle Diez. Villa's widow shows visitors his car, in which he was shot to death in 1923.

THE cavalcade of history has rolled through the pass. In Spanish days the royal road from Mexico City to the New Mexico capital of Santa Fe came through it. So did the Spanish Trail from Florida to California. The original town of El Paso was founded a little over 300 years ago to guard the pass from Indian raiders and afford travelers a safe place to rest. In early Anglo-American days the Butterfield Stage used the pass. Wagon trains and traders' carts rumbled through it.

Strange animals came through *El Paso del Norte* too. Early in the 16th century the Spanish came riding horses, new to North America. In 1857, even stranger four-footed animals plodded through the pass. Jefferson Davis, secretary of war at Washington, had imported 34 camels from Tunisia and Egypt. The beasts were landed at Powder Horn, Texas, and immediately demonstrated that they could take care of themselves in the New World. Soldiers had enclosed their corral with prickly pear cactus, which easily served to fence in horses and mules. The camels ate the fence and looked around for more prickly pear. Finally they were loaded with military sup-

For a different experience, cross the border and see a bull fight. Aficionados say you'll see the bravest and most respected bulls and matadors this side of Mexico City.

Some veteran shoppers say you can find great bargains in leather goods, copper ware, cowboy boots, sarapes, brass, and mantillas in the open markets of Juarez.

plies and led along the trail through El Paso on their way to help troopers fighting the Apaches.

Old enmities have been forgotten on the border as the social, cultural, and business life of the Mexican and American people intertwined. Stand on the international bridge across the Rio Grande at El Paso at five o'clock in the afternoon, and you are almost knocked down by the thousands of Mexicans returning to Juarez from their jobs in El Paso. They commute by international streetcar, the only one in North America. The fare is 10 cents or 15 centavos. Juarez families go to El Paso to shop in supermarkets and American department stores, and El Paso citizens as well as tourists stroll the colorful Juarez markets in search of bargains.

When it comes to leather goods, copperware, brass, cowboy boots, sarapes, and mantillas, the enormous spick and span concrete markets of Juarez cannot be beat. Veteran shoppers know that they get the best prices if they do their shopping later in the month. A sarape which sells for $25 the first of the month can be had for $20 a week later and for $15 by the middle of the month. Americans can find similar bargains by crossing the river at Brownsville to visit the bazaars of Matamoros and at Laredo to visit those of Nuevo Laredo.

A visitor to the Mexican border finds the Anglo-American and Spanish-American civilizations flourishing side by side with equal respect for one another. He can walk into the new cathedral in Juarez and hear the hallowed chant of the Latin mass, or go around to the rear to enter the ancient church which was old when George Washington was born. There the handiwork of early-day Indian converts evokes the colonial past.

Two giant bull rings compete for tourist patronage. Aficionados tell Americans that here they can see the bravest bulls and matadors this side of Mexico City. As a matter of fact, some of the most respected bulls in all Mexico are raised in Chihuahua, west of Juarez.

But it is in small things that the visitor comes to know the Mexicans best. He may stroll along a byway in Matamoros and come across a walled garden which could just as well be in old Spain. Crossing the bridge at El Paso, he may be hailed by small boys on the dry river bed below. The boys hold up tin cans attached to long poles.

"Your pennies, senor! Please, senor!"

HE throws a fistful of pennies over the rail, and the boys deftly swing the poles so that the coins rattle into the cans. Their thin faces light with happy grins worth a great fortune. This is Mexico, and so is the first sight of the square in Juarez, dominated by a heroic statue of Benito Juarez, the Indian admirer of Abraham Lincoln who drove the French usurpers from the soil of his native land.

Sometimes the tourist hears the blare of bugles and the roll of drums. Young Mexican army reservists march in a step-quickening salute to the liberator whose statue looks down with stolid benignity upon them. Then he may think of the tragic war of 1846 in which Mexicans and Americans fought one another. The Mexican Army band played spirited music in the quiet before one battle, and the American soldiers listened from their own lines.

"Hurray, senores!" cried the Americans. "Bravo! More music."

The Mexican band gallantly marched out of the lines and played up and down before the American positions, giving their music the infectious gaiety which is part of all Mexicans. (*Continued on page 62*)

by GAYNOR MADDOX

A Holiday Guide to Nuts

Some recipes specially chosen to increase your family's eating pleasure during the Christmas season.

Walnut Ambrosia Cakes combine yellow cake with sauces of orange juice and coconut for a Southern holiday treat.

NUTS are as much a part of Christmas as the jingle of reindeer bells. They belong in the toe of the chimney-hung stocking, as anyone who was ever a child well knows. We expect nuts in the gleaming wooden bowls brought in after Christmas dinner; in that array of Yuletide cookies children receive from aunts and grandmothers, and in homemade candies friends wrap in bright boxes to say "Merry Christmas from our house to yours."

Gathering nuts for Christmas no longer takes us to the woods. In your markets you'll find them ready to play their roles in fruit cakes, in stuffed dates, in fudge, and other candies, as well as cakes.

Pecan pie is a rich Christmas tradition and festive turkeys everywhere take pride in celery and walnut stuffing accompanied by the bright elegance of cranberry and nut relish.

There are as many different nuts as red berries in a holly wreath. Beside walnuts and pecans and almonds, the galaxy includes Brazil nuts, sweet-kerneled chestnuts for turkey stuffing or roasting in hot coals, aromatic black walnuts from the South for special cakes, and hazel and hickory nuts. Also Virginia and Spanish peanuts, pistachios, exotic piñon or pine nuts, Macadamia, and cashews. You can buy them whole in bags, shelled, slivered, or blanched in cans and boxes and jars. So take your choice, unfold your recipe, and count the days to Christmas.

Two cakes for the Yuletide festivities—the traditional fruit cake and an unusual vanilla citron almond cake.

Nutmeats in astounding variety offer the homemaker flavorful and nutritious additions to the Christmas menu.

Nougat

1½ cups light corn syrup
2 cups sugar
¼ teaspoon salt
¼ cup water
2 egg whites
¼ cup margarine or butter
1 teaspoon vanilla
½ cup chopped nuts
¼ cup chopped candied cherries (optional)

Combine corn syrup, sugar, salt, and water in a

heavy saucepan. Cook over medium heat, stirring constantly, until sugar is dissolved. Cook without stirring to 250°F. or until a small amount forms a hard ball when dropped into cold water. Just before syrup reaches 250°F., beat egg whites in a large bowl until stiff but not dry. Pour a small amount, not more than one-fourth of the syrup, slowly over egg whites, beating constantly. Continue beating until mixture is thick and holds its shape. Meanwhile, cook remainder of syrup over low heat to hard crack stage (300°F.) or until a small amount of syrup separates

For a Christmas gift with the personal touch, try home-baked pastries like these nut-topped oatmeal cookies.

into hard and brittle threads when dropped into cold water. Add syrup slowly to first mixture, beating constantly. (Syrup may become firm in mixture at this stage, but will soften again, and blend in smoothly with further additions of the hot syrup.) Continue beating until mixture begins to hold its shape. Beat in butter and vanilla. Beat until mixture becomes very thick and satiny. Stir in nuts and cherries. Turn into 2 well-buttered pans, 8 inches square. Nougat should be about ¾ inch thick. Press down evenly. Let stand until firm enough to cut; cut into pieces and wrap in waxed paper. Store candy several days to develop best nougat texture. Makes about 2 pounds.

Celery and Walnut Stuffing

3 quarts cubes of day-old bread
3 eggs, slightly beaten
1 cup butter or margarine
1 cup chopped onion
2 cups chopped celery
1⅓ cups chopped walnuts
½ cup chopped pimiento
1 tablespoon salt
1 cup chopped parsley
½ teaspoon pepper
1¼ cups chicken bouillon or consomme

Moisten bread cubes with chicken bouillon, then mix in eggs. Melt butter or margarine in skillet; add onion; cook 1 minute. Add with remaining ingredients to moistened bread. Toss until well mixed. Makes stuffing for 12-pound turkey.

Cranberry Orange Walnut Relish

1 pound (4 cups) fresh cranberries
2 cups finely-chopped walnuts
1 cup sugar
½ cup light corn syrup
2 unpeeled oranges, quartered and seeded

Put cranberries and oranges through food grinder, using medium blade. Stir in walnuts and sugar, then corn syrup. Chill several hours before serving. Makes 4 cups.

Spicy Sweet Potato Casserole

½ cup sugar
2 teaspoons cornstarch
½ teaspoon salt
¼ teaspoon cinnamon
¼ teaspoon nutmeg
⅛ teaspoon cloves, optional
1½ cups mashed sweet potatoes
¾ cup dark corn syrup
3 tablespoons butter or margarine
2 eggs, slightly beaten
1 tablespoon margarine, melted
¼ cup pecan halves

Combine sugar, cornstarch, salt, and spices in heavy saucepan. Mix in sweet potatoes, corn syrup, and butter. Bring to boil over medium heat, stirring occasionally. Boil, stirring constantly, until slightly thickened, about 3 minutes. Remove from heat. Gradually stir into beaten eggs. Pour into greased 1-quart casserole. Dip pecan halves in melted butter until evenly coated. Arrange on top of sweet potato mixture. Bake casserole in 350°F. oven (moderate) until set and knife inserted in center of mixture comes out clean, 55 to 60 minutes. Serves 5 to 6.

In Southern homes, pecan pie is a customary addition to the Christmas feast. A good idea anywhere, especially with a scoop of cool, smooth vanilla ice cream on top. Nuts embellish lighter desserts as well, such as walnut ambrosia cakes and almond Yule logs.

Pecan Pie

One 9-inch unbaked pie crust
3 eggs, slightly beaten
1 cup dark corn syrup
1 cup sugar
⅛ teaspoon salt
2 tablespoons melted butter or margarine
1 cup pecans
1 teaspoon vanilla

Prepare pie crust and line a 9-inch pie pan. Mix eggs, cornsyrup, sugar, vanilla, salt, and margarine or butter. Stir in pecans. (*Continued on page 79*)

Science Looks at Your Beard

Can You Pass This Shaving Test?

- *What common mistakes do blade-shavers make?*
- *Can you save money by resharpening razor blades?*
- *Are after-shave lotions a waste of money?*
- *What should you do about ingrown whiskers?*
- *Should you use a lather or a brushless cream?*
- *What's the best way to shave if you have acne?*
- *How fast does your beard grow?*
- *Can electric razors damage your face?*
- *How can an egg timer help you get an easier shave?*

by WILLIAM R. VATH

GROOMING GUIDE FOR TEENS
PART 3

THE AVERAGE MAN, assuming he begins shaving at age 15 and lives an average lifespan, will, over the years, scrape some 27½ feet of whiskers from his face.

Considering that in his 55 years of shaving, Joe Average will spend a total of 3350 hours, or 139 days, getting rid of his stubble, this daily ritual takes on new significance. Joe might begin to ask himself if there isn't a better, faster way to perform this chore.

Shaving has come a long way since Grandfather's day, when the male's prized possessions were a straight razor, long leather strop, a brush of imported badger hair, and a highly decorated shaving mug. Teen-agers today begin a lifetime of shaving with a vast array of skillfully engineered products from the laboratories of cosmetic chemists, metallurgists, research dermatologists, and other scientists.

They can shave while traveling (as a passenger, of course) 50 miles per hour with electric razors that plug into the cigarette lighter outlet of the family car, or deep in the woods on a camping trip with battery-powered razors. They can, without unwrapping or handling, insert a cheap, disposable blade into a safety razor that is adjustable to their skin and beard.

Today's shaver can release an aerated jet of foam-type shaving cream with the touch of a button. Or he can choose from creams

It takes time for soap and water to soften beard for best shaving. Use a full minute to wash and rinse with hot water.

Apply the shaving preparation of your choice. Then wait a full 90 seconds to allow your whiskers to soak thoroughly.

In general, shaving once over with the grain, using light strokes, is preferred. Change blades if "pulling" is noticed.

PHOTOS: GILLETTE SAFETY RAZOR CO.

Research goes on at industrial labs, universities, clinics, hospitals. Here shaving edges only four millionths of an inch thick are studied with electron microscope.

which come in three consistencies for light, medium, and heavy beards; creams containing antiseptics to reduce skin bacteria; creams with menthol to leave the face feeling cool. He can take his pick of brush-type creams, brushless creams, cakes and sticks of shaving soap, creams in cans, tubes, and jars.

To soothe his freshly-shaven face, he can apply a wondrous variety of colored, highly-scented liquids —and then perhaps finish up with a tinted talcum to remove the shine from his newly-beautified features.

Of course, the nation's shavers pay handsomely for these fancy preparations and accessories—some $449,500,000 in 1960, according to *Drug Topics* magazine. This included more than $16 million for razors, $109 million for electric shavers, $144 million for razor blades, and even $210,000 for razor strops.

Though recent improvements have made shaving quicker and easier, men must still face themselves in the mirror every 24 hours or so and submit their faces to a process that not only removes almost as much skin as hair, but also produces a multitude of tiny scrapes, no matter how carefully the shaving is done. This is true of any kind of shaving, wet or dry, says Herbert Mescon, M.D., professor and chairman of the Department of Dermatology, Boston University School of Medicine. Shaving, he explains, is accompanied by a form of abrasion—a mild trauma.

The skin is not a solid mass, but a structure composed of many layers. The outer layer, or epidermis, consists of several rows of cells piled one upon another. The outermost cells, which die and become toughened to protect the delicate cells underneath, form the horny layer of the skin. As skin grows, the cells in this layer are shed, with new cells replacing them from below.

Shaving removes living skin as well as the dead outer layers. But this doesn't mean that shaving is harmful, Doctor Mescon points out. It may stimulate the growth of new skin, and in this way be beneficial.

"The remarkable thing is that shaving doesn't do more damage," says Marion B. Sulzberger, M.D., emeritus professor of dermatology at New York University and a member of the American Medical Association's Committee on Cosmetics. "The face doesn't show any wear from it. In fact, a stone subjected to the same amount of scraping for 30 or 40 years would probably show more wear."

Shaving over a mole is often a cause for great concern. But it needn't be, says Doctor Sulzberger. "There is no evidence that even repeated cutting of ordinary moles will produce a malignancy."

Hair grows in tremendously varied forms. The shape of a whisker in cross section may be oval, round, rectangular, triangular, or completely irregular. Hair increases in coarseness (diameter) from the top of the head to the tip of the chin; a hair on a man's chin may be up to four times as thick as one from the top of his scalp. As a man grows older, his beard usually becomes coarser and stiffer.

AN average man has about 30,000 whiskers on his face, but the density varies greatly from man to man and from one facial area to another. The concentration is usually heaviest on the chin and upper lip, where whiskers may grow as thickly as 700 to 800 to the square inch.

The rate of hair growth varies little from one man to another. The average beard grows about .017 inch per day, or half an inch per month. Though men with dark, "heavy" beards may think their beards grow faster, they are fooled by the fact that dark whiskers merely show up sooner—that is, these men need to shave more frequently to maintain a freshly-groomed appearance.

Fat men usually get smoother shaves. This is because the large amount of fatty tissue under their facial skin gives the skin a resiliency under the pressure of the razor.

What's the best method of shaving? Is an electric razor better for your face than a safety razor? Answers Doctor Mescon: "No one knows for sure. There has been very little scientifically controlled work on the effects of shaving. Just as in driving a car, everyone's an authority on shaving. Manufacturers of shaving equipment have done some studies on shaving techniques, but most of the controlled results have not been published, so they're not available to the medical profession.

"We do know this, however: You can cut yourself just as much with an electric razor as with a blade. On the other hand, the closer you shave, with either instrument, the more abrasions and nicks you can expect—and a blade razor shaves closer than an electric razor. But to date there's no proof that any one method is best for all skins."

Since American males prefer wet shaving to dry by more than two to one, let's look at the dermatologists' advice on how to shave with a blade. Whether you use a double-edge blade, the conventional single-edge type, or an injector blade, certain rules apply. When dry, whiskers are hard and a good deal of pressure is required to cut them, so the main idea of a wet shave is to soften the whiskers. Hair will absorb water and, as it does, it becomes soft and easier to cut. A troublesome obstacle, however, is the water-resistant film of natural oil that collects on the hairs. This film must be penetrated before the hair can absorb water. To best do this, the experts suggest:

1. Wash the face with soap and hot water for at least one minute. This gives the skin and whiskers a soaking and removes grit, perspiration, and oil.

2. Rinse with hot water (as hot as you can comfortably stand it) and apply the shaving preparation of your choice. The water in the shaving preparation continues to soften your whiskers, and in about a minute and a half, they will be thoroughly soaked. According to shaving authorities, thorough soaking is one of the essentials of easy shaving. Use an egg-timer or a clock a few times to make sure you're waiting a full 90 seconds; most people are poor judges of time.

3. Wet the razor with hot water before starting to shave. Both razor and face should be kept wet during the entire operation.

4. Shave the chin and upper lip last, since these areas have the heaviest concentration of coarse whiskers and need the longest contact with water.

THESE further points of advice will also prove helpful:

—In choosing a shaving cream, men with oily skins will do best to choose a lather-type and use a brush or to use an aerosol foam preparation. These creams are actually soaps, which tend to flush away oil better than brushless creams, which have a far lower soap content. Men with dry or soap-sensitive skins should use a brushless cream, which provides the most lubrication. Brushless creams are emulsions of oil in water and do not rob the skin of its oils.

—If you live in a hard-water area, you'll get a better shave if you use a bit more soap and shaving cream.

—If you have an oily skin, a mentholated cream

Clip and retain in notebook for future reference

A LOOK AT THE WHISKERY PAST

4th century, B.C.—Alexander the Great ordered his soldiers to shave so their beards could not be seized by the enemy in combat.

3rd century, B.C.—Scipio Africanus, a general, was the first Roman to shave every day.

1000 A.D.—Men in the north of France began to shave "like actors."

c. 1100—In England, an attempt to revive the wearing of beards was denounced so forcibly by Bishop Serlo of Séez, that King Henry I and his courtiers consented to have their beards removed in church by the bishop's own shears.

1250—An age of many full and curled beards.

1350—Beards common, the forked pattern and the long, drooping moustache popular.

1535—Henry VIII caused his beard "to be knotted and no more shaven," which increased the popularity of beards in England.

c. 1600—An age noted for immense popularity of beards and extreme styles in beard trims. In England, men wasted hours perfuming or starching their beards, dusting them with orris powder, and curling them with irons and quills. This foppish behavior evoked much criticism from Puritans.

1610—The clean-shaven face came into vogue in France with accession to the throne of Louis XIII, who was unable to grow a beard.

c. 1700—A similar development took place in Spain when the youthful Philip V took the throne.

c. 1700—Russia's Peter the Great tried to "Westernize" his country by taxing beards.

c. 1800—Hollow-ground razors invented. Early models were wedge-shaped with straight sides tapering to a sharp edge.

1850—for some 20 years after the Revolution of 1830 in France, beards were disapproved of in various countries as emblems of dangerous opinion.

1904—King C. Gillette patented the original three-piece safety razor.

1907—waiters in Paris went on strike against the rule which forbade them to grow a moustache.

1928—first electric shaver patented by Jacob Schick, a retired Army colonel.

1938—first one-piece double-edge razor placed on the market.

1958—Introduction of safety razor on which blade edge exposure and angle could be adjusted to suit light or heavy beards.

PHOTO: SUNBEAM CORP.

Because they save time and eliminate the bother of soap, water, and shaving cream, electric razors are popular with many. New models even do away with power cords.

will help. Menthol has a degreasing action on skin.

Shavers often wonder if they can save money by resharpening or drying blades after each use. Theoretically, drying a blade should keep it from rusting and thus lengthen its period of usefulness. Actually, removing the blade and wiping it may damage the fine, extremely sharp edge.

Most blade sharpeners are a waste of money, since they either do nothing or actually harm the cutting edge. Examples are sharpeners which use lead blocks and those using glass balls. And the old myth that refuses to die—that you can sharpen a blade by rubbing it inside a glass tumbler—is a waste of time and energy: The blade edges don't touch the glass, so they couldn't possibly be sharpened.

An exception, says a leading blade manufacturer, are stropping devices; they can extend blade life by probably one extra shave per blade.

What are the major complaints about shaving? According to Doctor Mescon, acne and ingrown hairs are the two most frequent offenders. He says there are three theories as to the cause of ingrown hairs:

1. Shaving too close can result in clipping off whiskers beneath the surface of the skin. This often happens when men shave against the grain.

2. The smoothness or roughness of the cut edge of the hairs may affect the production of ingrown hairs. The more roughened edges there are, the more liable the hair is to get caught by the skin and grow inward. Electric razors have been shown to produce roughened edges and thus might play a role in this problem. This is purely theoretical, Doctor Mescon emphasized, and proof must await further study.

3. The duller the blade in wet shaving, the more pressure must be exerted and the greater the angle of the cut edge of the whisker. A sharply angulated hair appears to have more change of "curling" inward rather than growing outward.

Doctor Sulzberger adds a fourth possible cause of ingrown hairs: a constitutional, inborn tendency to strong, curly hair, which causes the closely cut off ends of whiskers to curve back and tend to re-enter the skin.

Men who are bothered with ingrown hairs, says Doctor Mescon, should experiment to find out which shaving method gives them the least trouble. Don't shave against the grain more than necessary; don't try to shave too close, especially in the neck region; and use a sharp blade.

Shavers troubled with acne (most likely to occur in high school and college age groups) compose the second largest group of complainers. The best advice for these unfortunates, says Doctor Sulzberger, is to use the method of shaving that is least unpleasant. Changing from an electric shaver to a safety razor will help some men, he says, and a switch from blade to electric will help others. A few men with severe acne must grow a beard—for nothing has been found to help them.

At Boston University, Doctor Mescon directed tests among students with acne to try to determine whether wet or dry shaving was better for men with this skin condition. Each participant shaved half his face with an electric razor and the other half with a safety razor. The results showed no clear-cut correlation between the method of shaving and its effect on the severity of acne. In other words, says Doctor Mescon, there is no proof at present that any one method is best.

A number of questions remain about shaving preparations. Here are those questions and Doctor Mescon's answers:

Q. Are after-shave lotions of any real value?

A. Not to the average person who has no trouble with his skin. For this person, an after-shave lotion is purely a cosmetic preference. Except for the fragrance, he might as well use rubbing alcohol, witch hazel, or just plain water. For persons with troubled skin, rubbing alcohol or an alcohol-containing lotion may help by reducing surface bacteria, but its benefit has not been thoroughly evaluated.

Q. What about electric pre-shave preparations?

A. Nothing scientific has been published on this. In my own opinion, however, these products do seem to allow shaving to be performed more easily.

Q. Some shaving creams are advertised to be "medicated" or to contain antiseptics. Are these added ingredients of any value?

A. Tests have proved that some antiseptics in shaving creams do greatly reduce bacteria for as long as 24 hours, and so they probably do some good. We're not 100 percent certain of the role played by skin bacteria. Everyone's skin is heavily populated by bacteria. Even after the most conscientious sur-

gical scrub, some bacteria can still be cultured from the surgeon's skin.

Q. Do shaving brushes harbor enough germs to be a potential hazard?

A. I have not seen published data, but I doubt it. The daily contact with soap would pretty well disinfect the brush.

To many other questions about shaving, dermatologists can only say that not enough research has been published to produce valid answers. "A great deal remains to be learned," says Doctor Mescon. "Men have been shaving for more than 2000 years, and we still don't know as much as we would like to know about the subject."

A New York man who shares these feelings made headlines recently when he called on Congress to sponsor a $1-billion crash program to wipe out whiskers. In letters to Sen. Kenneth B. Keating (R., N. Y.) and at least two other senators, the New Yorker said that considerable progress has been made in removing hair from animal hides and asked why the same technique could not be applied to men's whiskers.

"Here is a golden opportunity for America to be first," the letter read.

SENATOR Keating said he had forwarded the letter to the Department of Health, Education, and Welfare, but admitted that he had since had some second thoughts. "I'd be unhappy—as would all taxpayers—if we discovered we'd spent a billion dollars and came up with a hair remover that also turns out to be a face remover," the senator said.

"Also a lot of my friends tell me their their most productive thinking takes place while they are shaving. And since we need all the creative thinking we can get these days, maybe it's not so wise to cut off one of the prime sources of supply."

Actually, though the Senator's correspondent may not be aware of it, considerable shaving research is going on right now. Studies are being sponsored by the National Institutes of Health, by pharmaceutical firms, and by the shaving industry. In universities, clinics, hospitals, and industrial laboratories, volunteers—including doctors, medical students, and patients—are participating in studies of acne, hair growth, and shaving.

Dermatologists will welcome the findings of such scientific research, says Doctor Sulzberger, who charges that much of the published investigation done by the shaving industry has been incomplete and unscientific. "Too many companies do just enough research to write an enticing line of copy in an advertisement," he declares.

Changes in shaving instruments and accessories will undoubtedly come out of continuing research, but the improvements are likely to be small—at least in the foreseeable future. Eventually, predict the scientists, they may perfect a safety razor that will not require beard preparation.

ONE new idea in razors flopped a few years ago to the tune of over $1 million. Designed by a top industrial designer for a fee of $40,000, this unusual shaving tool featured a continuous 40-inch, single-edge blade, one-fourth inch wide, in a coil which was fed and received on tiny reels at the turn of a key. The reels were contained in a small cartridge which slid into the razor's head.

Some 30,000 of the razors were sold at $5 retail. Then the complaints started coming in: The new product was an inch and a half longer than conventional safety razors and most men found it bulky and clumsy to use. Furthermore, though the rounded ends of the shaving head looked nice, they interfered with close shaving under the nostrils.

But, worst of all, shaving cream clogged the razor's head and congealed in the cartridge, making blade changes impossible without a pair of pliers.

The product was quietly removed from the market.

So, until some fantastic new breakthrough takes all the work out of shaving and makes it a positive joy, be thankful you don't live in Polynesia, where the natives still remove whiskers with pieces of seashells or sharks' teeth ground to a fine edge. END

Clip and retain in notebook for future reference

Complexion Problems? Here Are Tips on How to Shave

From Howard T. Behrman, M.D., director of dermatological research, New York Medical College, come these suggestions for shavers with an acne problem:

1. Shave with the grain and as seldom as possible (maybe once or twice a week).
2. If you prefer a wet shave, use a new blade each time. Shave as lightly as possible to avoid nicking pimples.
3. Soften the beard by washing carefully first with plenty of soap and hot water.
4. After shaving, rinse with hot water, then cold water.
5. Apply an astringent, antiseptic lotion.
6. Don't pluck ingrown hairs. Gently loosen the free ends so they do not grow back into the skin.
7. Some will be helped by changing from a blade razor to an electric shaver, or vice versa, but in general a wet shave seems best.

Death Comes

LOTTIE NORRIS was going home for Christmas.

Of course, she reminded herself quickly, "home" was wherever she and Jeff and their two children happened to be living. It was just that she had lived in so many places, they had all given her the feeling of being tourist way-stops. To Jeff, an Air Force technician who liked the service and liked traveling around, a house was simply a place to hang your hat. He couldn't understand the sentimental attachment Lottie had for the one place where her roots ran deep—the gray frame home where she was born and where the back windows opened up the whole panorama of northern Wisconsin.

Lottie hadn't been back there for four years. Her parents had never seen Bruce, her three-year-old, and knew him only from gurgles across the trans-Atlantic telephone. Her parents were quiet, seemingly phlegmatic people in the grass roots manner, but Lottie knew that deep down they were on knife's edge waiting for the green sedan hurrying toward them from nearly 500 miles away.

They'd left their apartment near the air base in Indiana at seven in the morning. Some of the new friends they'd met when Jeff was assigned to this base after his overseas tour had kept them up pretty late, and Lottie was all in favor of sleeping later and leaving later. Jeff wouldn't hear of it. "Let's make time," he'd said. Jeff didn't like long auto trips and whenever he took one, he wanted to get wherever he was going as quickly as he could. The roads were nearly empty that hour of the morning and by nine o'clock they had crossed into Illinois.

Jeff turned on the car radio. There were the usual reports of international tensions which took no holiday for Christmas. Then the announcer broadcast the latest traffic bulletin. "It is estimated that more than 400 people will be killed in highway accidents over the holiday period," the radio voice said grimly. "Expected snow and possible hail in the Midwest will increase road hazards and may cause an upward revision in accident tolls."

Jeff snapped the radio off. "I just love these vampires who try to ruin your holiday by telling you about accidents before they even happen," he said angrily. Lottie felt suddenly tense. "They're just trying to warn people to be careful," she said. "There's more traffic now, hon. Maybe you should slow up a little."

"Don't be silly. I'm only going 10 miles above the speed limit," Jeff said in an annoyed voice. Jeff used to say that back-seat drivers were all right for husbands who didn't know anything about cars or how to handle them. He took great pride in the fact that he knew every part that went into a car's motor. He'd had only one accident important enough to remember and that one, he was convinced, was the "other guy's fault."

Lottie relaxed back in her seat. In the rear-view mirror, she saw Peter, her six-year-old, and Bruce looking at comic books on the back seat. They didn't seem bothered by anything. "We're a happy foursome," she thought to herself. "What a thrill Mom and Dad'll have when they see us drive up . . . when they see Bruce for the first time. . . "

BLANCHE Arnow was going away for Christmas. She and Stan had decided almost on impulse to spend the holiday week in Chicago. Her folks were down South this year and since Stan's parents were dead, they had intended to stay home. But Jimmy, their 10-year-old and only child, had never seen a big city and when Stan found he could have the week off, they had decided suddenly to go to Chicago.

They'd take Jimmy to see some shows, the Art Institute, the Aquarium, the Planetarium, and all the museums. They'd eat in elegant restaurants and admire the skyscrapers, and maybe go ice skating.

Jimmy was a red-haired, skinny youngster with a mobile face he could convert easily into a whole series of comic caricatures. As Blanche

for Christmas

by MARTIN ABRAMSON

turned to look at him in the back seat, he pointed to the safety belt which she had snapped shut around him. Then he twisted his face into a Sad Sack appearance, and made a gesture as if to open the belt. Blanche said reprovingly, "Now, Jimmy, let's not go through that again."

In the driver's seat, Stan laughed easily. His belt was snapped shut too, as was Blanche's. Like Jimmy, he thought the safety belt was excess baggage. Stan was an easygoing sort; lazy, some might say. As a salesman of plumbing supplies, he made a fair living, but he could do better if he pushed harder. Stan just didn't like to bother with anything that required special or, to his mind, unnecessary effort.

It was Blanche who had insisted on their buying the seat belts when they got their black, 1960 hardtop, and it was Blanche who snapped them on. She snapped them on friends who rode with them, even though these friends didn't buy belts for their own cars and teased the Arnows about theirs.

BLANCHE had even made Stan's boss adjust his belt when they gave him a lift one day. "Damned foolishness. I'm not going on a jet," the boss had grumbled. Embarrassed, Stan had tried to laugh it off by saying, "My wife's got a phobia about this. I figure it's easier to humor a phobia than to fight it."

Blanche's "phobia" included taking the car to the service station for a complete checkup whenever they planned a trip. She had put a plastic covering over the dashboard to soften the blow if anyone banged against it. When Stan drove too fast, she didn't whine or plead, but she wore a look on her face that made Stan feel awful—and made him ease up on the accelerator. She had a habit of clocking their trips and seeing to it they stopped every few hours for a short rest even if she had to invent an imaginary need for the ladies' room to make her point.

Though Stan griped about the "phobia" now and then, he didn't seriously fight it because he knew it came from a deep well of emotion. Eleven years ago, Blanche had witnessed a traffic accident which had killed two people. She was never able to put it entirely out of her mind.

Thinking again now of that nightmarish scene of blood and horror, she felt a shudder go through her. She turned around a second time to see if Jimmy's belt was really fastened. It was. Satisfied, she took a magazine out of her overnight bag, started to read, and to unwind. . .

LOTTIE had finished reading, and now with her eyes closed, she was somewhere in that half-world between sleep and wakefulness. She could smell the miles of hemlocks and pines that stretched endlessly behind her folks' old farmhome. She could see the necklace of lakes and streams, covered with ice this time of year and dusted with the snow that scurried across it, pursued by 30-mile-an-hour winds. She smiled in sleep at the farm folk, dressed in their finery in front of the church, their windburned faces warmed by the Christmas season.

She saw the Christmas tree, with the shiny star her father always hung on top. She saw the holly and the mistletoe; the dining room table heaped high with festive fruits and berries; the glowing candles; the gift table resplendent with gay-colored boxes and garnished with cookies and greens; the little Victorian costumes that her mother kept in the closet and would surely try to get her children to wear. She could smell, almost taste, the roast turkey, her mother's hot bread baking in the stove, the plum pudding, and the pumpkin pie.

The noise of a car horn woke her abruptly. A low-slung car carrying a couple of teen-agers was trying to pass them. Jeff honked back angrily. He didn't like noisy honkers on the highway.

"Don't get your blood pressure up," Lottie told him as she always did. He looked at her, still grim, and then smiled. "Have a good nap?" he asked. Lottie yawned. (*Continued on page 63*)

A Dream Come True: He's a Doctor

Three people—a nun, football coach, and a pretty medical technologist—helped him achieve his goal.

by DENNIS ORPHAN

SINCE ALEXANDER GUIRA was eight years old he has wanted to be a physician. And in June his dream will come true, because he will be awarded a doctor of medicine degree from the School of Medicine, Marquette University in Milwaukee.

It was a long and hard trip for this son of a Romanian immigrant who traveled from his home in Cleveland to Milwaukee to fulfill his childhood ambition.

"On the day I graduated from St. Ignatius high school in Cleveland one of my favorite nuns got me aside and convinced me that I should pursue a Jesuit education," Al said. "She suggested I attend Marquette University and study to become a physician.

"By coincidence, my football coach helped me get an athletic scholarship—to Marquette. Except for the scholarship, I doubt if I would have been able to attend a university. I'll be forever grateful to the sister and to the coach for their advice, counsel, and help."

While taking a tough premedical course—including 16 semester hours of inorganic, organic, and general chemistry, eight hours of physics, eight hours of zoology, and other general science and elective courses planned by a dean in his premedical college—Al found time to make the varsity football team his first three years at Marquette. In fact, he received the outstanding lineman of the year award when he was a sophomore. However, the lectures, seminars, and long hours of laboratory work caught up with him, and he dropped out of athletics in his last year and concentrated on receiving a bachelor's degree. He succeeded and was admitted to Marquette's School of Medicine.

Marquette University is a Catholic institution controlled by the Society of Jesus. It takes its name from Pere Marquette, the renowned French Jesuit who explored the Great Lakes area.

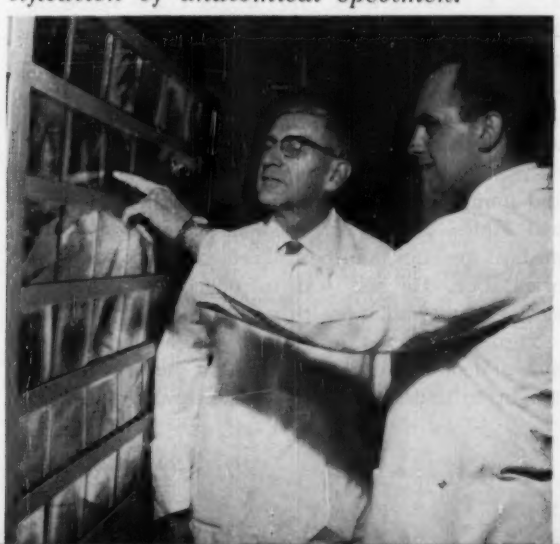
Since its founding in 1881, the University has sought to imitate the ideals and zeal of Pere Marquette in a manner befitting an institution of higher learning—by exploring the ways of truth, preserving the truth it knows, and communicating the truth to those it serves.

Marquette University's School of Medicine was founded in 1913, when the University acquired two

To learn more about physiology, Al "experimented" on himself many times.

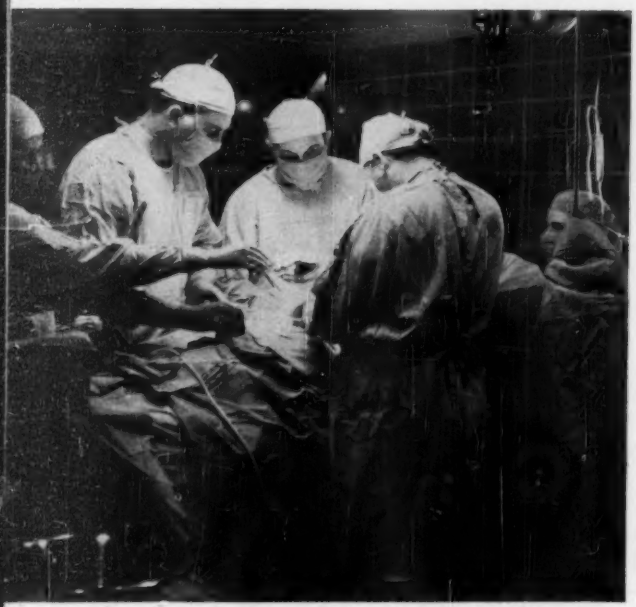
Al begins a physical examination on an attentive youngster in a children's hospital.

Professor Walter Zeit tests Al on identification of anatomical specimen.



Al and other students receive instruction on the anatomy of the heart.

"If it wasn't for my wife, I doubt if I could have made it."



Al, second from left, is part of a surgical staff team providing assistance to a surgeon during an operation.

privately-operated medical schools in Milwaukee.

The purpose of the medical school: "To educate physicians skilled in the art of their profession by teaching the basic biological and medical sciences and their practical application in the care and prevention of disease." In addition, its curriculum seeks to develop in its students high moral and ethical character.

In his four years of medical school, Al has followed a general curriculum of the type subscribed to by all American medical schools. The curriculum—two years devoted to the study of the basic medical sciences, and two years devoted to clinical instruction—meets all the requirements of the Council on Medical Education and Hospitals of the American Medical Association, and the Association of American Medical Colleges.

In his first year he studied gross and microscopic human anatomy, neuroanatomy, embryology, biochemistry, physiology, medical psychology, biostatistics, and medical genetics, and he received clinical orientation.

In the gross anatomy course, Al worked with a team of other students over a cadaver. Under staff supervision they dissected, and participated in formal and informal lectures, conferences, and quizzes. They were introduced to manuals and textbooks, they studied models, and they saw movies and slides on the developmental anatomy of the embryo, fetus, and child.

In neuroanatomy, Al dissected the human brain and studied it carefully. He was taught the basic and standard biochemical tests and methods in his biochemistry lectures, conferences, and in the laboratory. He learned all about the muscles, nerves, reflexes, blood, heart, and circulation in physiology, and studied the relationship of psychiatry to medicine in medical psychology.

The object of his freshman course in biostatistics and medical genetics was to present Al with a few of the tools of statistical inference. Planning of investigations, chance and random samplings, and the role of the physician in medical-legal problems, were only a few of the things he covered.

In his second year in medical school, Al's life became complicated. "This is when a medical technologist saved my academic life," he said with a smile.

"I met Anne during my senior year in college, fell in love with her, and we married at the end of my freshman year in medical school. She kept working and literally kept the cupboard supplied with food. If it wasn't for her financial support, and the psychological lift she gave me during the many hard nights I had, I doubt very much if I could have finished my second year, let alone get a medical degree.

"It was terribly strenuous on her. But she wanted very badly for me to become a physician and she went above and beyond the call of duty as a wife. After her day's work, she would come home, fix dinner, take care of the house, and then encourage me in the many ways that a good woman can encourage a man bent on a career."

For some reason Al can't define, his second year was his toughest. Like all other sophomores, he took courses in physiology, pharmacology, microbiology and immunology, pathology, psychopathology, medical ethics, history of medicine, biostatistics and medical genetics, and he learned more about clinical orientation. He also was introduced to obstetrics, surgery, and public health problems.

Through lectures, laboratory assignments, experiments, demonstrations, and motion pictures, Al was taught to understand the fundamental problems in

the fields of microbiology and immunology. He received instruction in the collection of viruses and bacteria and how they affected mankind. And through lectures, assignments in textbooks, and demonstrations on manikins, supplemented by on-the-job instruction in the county hospital, he learned a little about obstetrics and gynecology.

In pathology he learned how to understand the biological and laboratory interpretations of disease processes, with their applications in medicine and surgery. The courses he took in this field were coordinated to give him a complete and unified concept of disease processes.

Problems affecting community health were considered in his public health courses. Environmental sanitation problems including those relating to water supply, waste and sewage disposal, food, air, and housing were considered. He became acquainted with the nature and scope of activities of a wide variety of national, state, and local public and voluntary health agencies. He learned the legal obligations of the physician for reporting of communicable diseases, industrial diseases, births, and deaths. And in an orientation course in surgery he was introduced to the surgical technique.

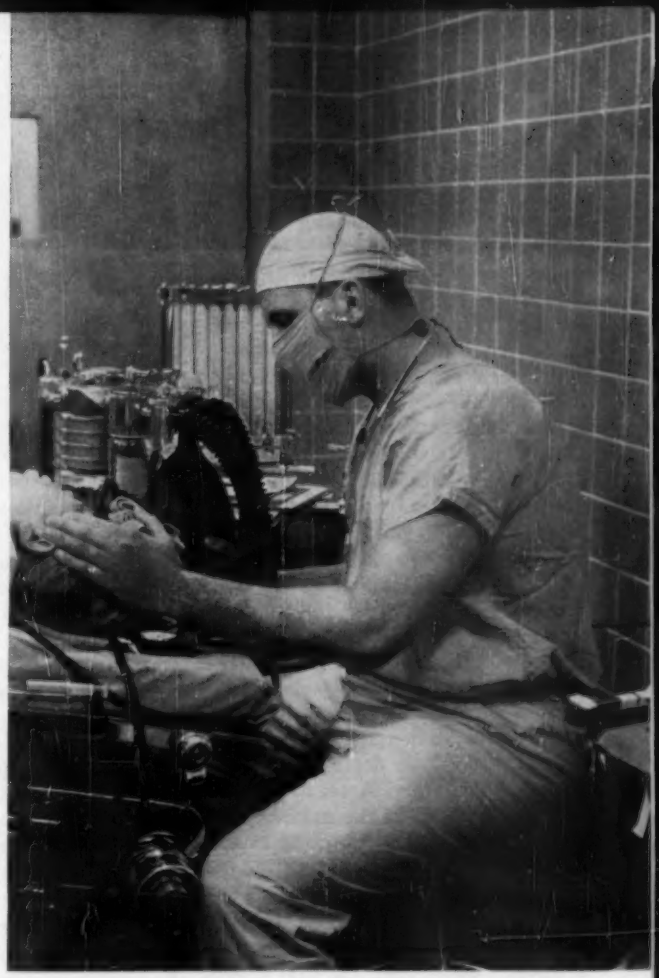
Often he came into contact with Dr. Walter Zeit, professor of anatomy and associate dean of the medical school. Doctor Zeit is the oldest faculty member in point of service, and has taught in the basic science department since 1921. In his tenure, he has taught about 5500 medical students.

The knowledge Al acquired in his second year paid off in an odd, but an important way. Al and Anne were quite happy when John was born. Like any baby, he was loud and cute. But unlike most babies, little Johnny developed glaucoma—an eye disease that would lead to blindness unless treated promptly.

Here's the way Al tells it: "One day when Johnny was three months old, I noticed there was a dull gray appearance of one eyeball. I was worried. I had studied a little about glaucoma, but was afraid to make a diagnosis. We saw a specialist. He diagnosed the disease and suggested immediate surgery. He performed the surgery and Johnny's sight was saved. The specialist told me later that if it had gone on a few more months he doubted if Johnny's sight could have been saved. I was quite happy I remembered my lessons about that awful disease."

Between his second and third year, Al went to work in Milwaukee. He had three jobs that summer. He acted as a first aid assistant in a factory during week ends and he earned $3.50 an hour. When that job ran out, he kept a glue pot filled in a brewery.

His next job was a bit harder than keeping his eye glued to a glue pot—he was a furniture mover. The heavy work wasn't to his (*Continued on page 82*)



PHOTOS: MARQUETTE UNIVERSITY SCHOOL OF MEDICINE

Under supervision, he put to practice on patients in surgery some of the techniques he learned in anesthesiology.

Senior resident Dr. Wayne E. Bennett watches Al test a patient for glaucoma.

Down Mexico Way

(*Continued from page 47*)

The Americans could not help but notice that most of the finely-dressed soldiers in the military band were mere boys. In the morning the two armies fought savagely. When the outnumbered Mexicans fell back, many an American soldier felt sick at heart to recognize among the dead, boys of the spirited band, which had brightened their yesterday with music.

The Mexican border is more than the gaiety of music, the tragedy of history, romantic gardens, and bargains in the market. To a rock hound, it offers the custom smelter at Smeltertown on the El Paso side. The smelter will refine lead, zinc, copper, gold, or silver for all who bring their ores. To others, it is the statue of Christ high on a mountain peak, standing with its feet in wild flowers and its head looking down on the two nations, which it summons to a common destiny. On feast days Mexicans and Americans alike climb to the top of the mountain to pay homage to the Prince of Peace.

Driving about El Paso, Brownsville, or Laredo, visitors see from the bilingual signs on the shops that the towns are as Latin-American as they are Anglo-American. On side streets black-haired little girls in red sweaters and red stockings walk to school with blonde girls. Turn on the car radio, and the visitor picks up as many programs in Spanish as in English. Spanish and English newspapers are published on both sides of the border.

Parking meters can be found on both sides of the border, too, but at least the visitor does not have to put coins in those in Juarez. When he parks his car, a man more or less in uniform hurries up and deposits the coin for him. The visitor hands him a quarter, and he sees to it that the meter is replenished from time to time.

Fine Mexican restaurants can be found on both sides of the border. Domingues Cafe on Tlaxcala Street in Juarez claims that, "You eat like home. We cook like home." This may be true if the visitor is accustomed to home-cooked green enchiladas, Spanish rice, fried beans, and whole green chili peppers rolled in batter and deep fried.

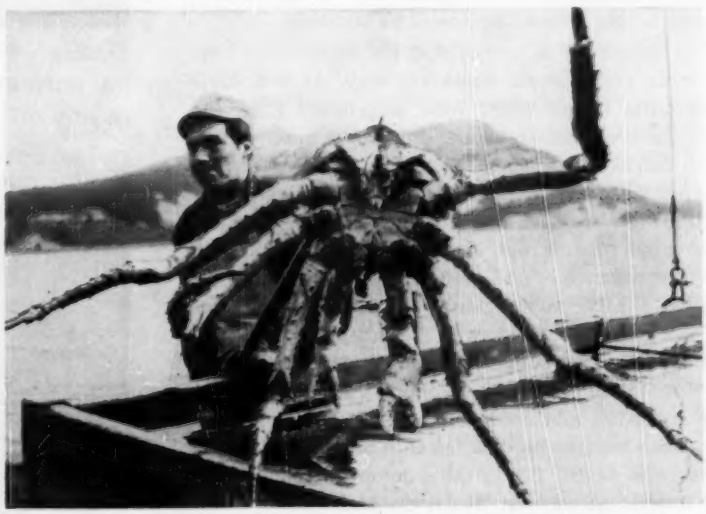
Curiously enough, what is most likely the best Mexican restaurant is on the American side of the border at Old Mesilla, New Mexico, some 40 miles north of El Paso. This is La Posta, once a stage stop on the old Butterfield Trail. For more than a century and a quarter such diverse guests as Kit Carson, Billy the Kid, and Pancho Villa have dined within its three-foot-thick adobe walls. La Posta's guacamole salad and tostados must at least have made Billy the Kid feel a little less ornery about life. That they were not likely to prove entirely successful is brought home forcefully when it is discovered that right across the street from La Posta is the old courthouse where The Kid was sentenced to be hanged.

Visitors to the border find all sorts of side trips enticing them. There is Alamogordo, once the object of an Apache raid, but today dedicated to the space age. Visitors are guided to nearby Trinity Site, where the world's first atomic bomb was exploded on July 16, 1945. At the Holloman Air Development Center Col. John P. Stapp rode a high speed rocket sled at 620 miles per hour. Man-made wonders bloom like satanic flowers and rush at blinding speed close to the border.

It is still the wonders of nature that attract most visitors. There are Carlsbad Caverns, where parties descend 829 feet beneath the surface and walk two and three-quarter miles through the fantastic bowels of the earth. There are the lofty mountains around Cloudcroft where southwesterners ski in the winter and golf in the summer.

There are the White Sands, mysterious and shifting. Tom Charles, who became the custodian of the sands when they were made a national monument, urged tourists to visit them at dusk.

"As you linger in the twilight," he said, "I hope that a gust of wind will come up over the long slope and sweep up an eddy of swirling sand, and as it reaches the summit it will stand erect, almost in human form, and then stop and bend as if peering into the shadows and run along the rippled ridge and stop and bend again, then disappear into the darkness. For then you will have seen the Palo Blanco, the ghost of the beautiful woman who, according to the Spanish legend, comes nightly dressed in the flowing white robes of her wedding gown and looks and



MR. CRAB GOES TO COLLEGE

Anchorage, Alaska—This giant king crab is one of three ordered by Harvard Medical School to aid in the study of heart disease. Researchers are analyzing a microscopic bit of substance in some nerve tissue that lies across the orifice of the crustacean's heart. This mysterious substance controls the speed of the heart beat and the amount of blood passing through the heart. Harvard investigators hope to learn how the human heart, like the crab's, can be controlled at will—knowledge that could be useful in heart surgery and in the treatment of heart attack victims.

searches for her lover lost and buried in the Great White Sands."

In the eerie silence it sometimes seems that ghosts from the Spanish past do indeed haunt the sands. Sometimes the winds shift the sands and reveal Spanish carts and ox yokes abandoned long ago on the grueling march across the desert.

The Mexican side of the border offers still more intriguing side trips. From Juarez the Central Highway leads across barren deserts and stark mountains to the capital city of Chihuahua. There the great cathedral looks down on the square, and handsome houses line Zarco and Cuahtemoc avenues as in the old colonial days. The old Aqueduct built in 1754 still stands.

Visitors can go to the dungeon at the Federal Building, where authorities imprisoned Miguel Hidalgo y Costilla, the George Washington of Mexico's struggle for independence from Spain. The crystal sky looks down with unchanging brilliance upon the old buildings and the new, the luxurious new hotels and the humble adobes. In the night a wandering mariachi orchestra plays, and it seems only yesterday that the Spanish conquistadores jingled into the city with gold and silver in their saddle bags and the Franciscan friars trudged out of town toward the mountains where the Tarahumara Indians awaited their coming.

The world knows the Tarahumaras for their incredible running ability. They can run up to 120 miles without stopping and have been known to outrun a deer. Even glimpsing their rugged mountains from the distance a motorist gets an idea of how they developed such speed and stamina. The adventurous traveler who takes a jeep from the Kansas City, Mexico, and Orient Railway station at Creel, beyond Chihuahua City, and drives back along the old mining road to the bottom of Batopilas River Canyon will find he has driven into a strange world of tumbled cliffs and canyons cut by river torrents and carved by wind. Here along the Continental Divide the massive mountains are sundered by 20 grand canyons, *Las Grandes Barrancaz,* some almost as deep and wide as the Grand Canyon of the Colorado.

Visitors who brave the jolting roads meet the Tarahumaras in their remote villages where they grow corn, weave colorful blankets, and carve violins as they were taught to do by early Spaniards. High on the mountains, snow falls in the winter while deep in the canyons oranges, bananas, and mangos grow wild. Parrots fly among the orchids. Pumas and jaguars stalk through the jungle. So far no hotels or motels have been built in this wilderness which lies so close to cosmopolitan El Paso and Juarez, but the Mexican government is planning a paved highway into the region. It is expected that overnight accommodations will be made available when the road is completed.

The Central Highway leads back through Chihuahua City to the border. But the experienced tourist will turn aside at El Sueco and drive to the west until he arrives at Casas Grandes. There, 700 years ago, an elaborate irrigation and drainage system made possible rich farms. A robust Indian civilization flourished. Pyramids, tombs, and pueblos were built. Although only 100 air miles from downtown El Paso, these structures offer an English-speaking visitor a look at the Mexico that was old when Cortez invaded the kingdom of Montezuma. They remain today on the desert as symbols of the day when there was no border on the Rio Grande and the Aztec nation was sovereign. END

Death Comes for Christmas

(*Continued from page 57*)

"Much too short, I'd say," she said. "I was dreaming about all my wonderful, wonderful Christmases in Wisconsin, and then those noisy kids had to come along."

"Well, you won't have to dream about a Wisconsin Christmas any more; you'll soon have it for real," Jeff told her. "The kids are still napping in the back. When they get up, we'll stop for a bite. Let's not be too long, though. I want to make time."

He put the radio on again. They listened to music for a while, and then a disc jockey said, "Now here's a late, important message. The accident rate on the nation's highways is steadily . . ."

Jeff twisted the knob on the dial. "Those buzzards are back again," he muttered. A car jumped out of a blind side road so suddenly that Jeff had to swerve sharply to avoid a

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collision. "Damned idiot!" he swore.

"Remember what that racing champ had to say on that program we listened to?" Lottie said. "When you're driving in holiday traffic, you've got to be doubly careful—you've got to watch not only your own driving, but the other fellow's."

The racing champ they had heard interviewed was Johnny Parsons, a winner of the Indianapolis "500" race. Some of the things Parsons had said were an eye-opener to Lottie. He'd observed that he found it much more dangerous to drive on public highways than he did in a professional race. He'd emphasized the need for having recessed or collapsible steering wheels, for keeping the wheel and dashboard free of sharp gadgets, and for using seat belts.

"If you do have a crash, these precautions can help keep you alive," he had warned. "When you crash, your car comes to a sudden stop, but you're still traveling forward at 50 or 60 miles an hour and if you're not restrained, you'll hit the windshield or dashboard with murderous force."

Jeff, however, had argued that Parsons' advice wasn't meant for drivers like him.

"Those wild, crazy hot-rodders who drive cars 90 miles an hour need protection like these race drivers use," Jeff had said. "Or some of these drivers who don't know anything about cars, or are half-blind or get so potted before they leave a party they're liable to drive off a cliff. It's *those* nincompoops who have all the accidents."

Lottie had dropped the subject then, but now as the traffic continued to increase and she saw cars jockeying dangerously in and out of line, it occurred to her that she might have kept after Jeff about those safety devices. She opened her mouth to say something. Then she saw the firm line on Jeff's chin as he stared ahead, grim and annoyed at the traffic, and she caught herself. She didn't want to nag. Jeff was a good driver. Hadn't he spotted that car shooting out of that blind side road?

Ten minutes later, the children began to stir and Jeff turned in to a roadside diner. By then, Lottie had convinced herself she had nothing to worry about on this trip. . .

■ The Arnows' trip was only 250 miles and they could have made Chicago by early afternoon. But when it began to snow heavily about noon, Blanche suggested they stop for a while to visit her cousin in Appleton. "We haven't seen Janet or Fred for a long time and there's no great rush to get to Chicago," she said. "They're only a few miles off the main road."

"Okay, okay," Stan said. "You want to drop by Janet's for a while,

Cheerfulness, sir, is the principal ingredient in the composition of health.

—Arthur Murphy

we'll drop by. I'll pretend I don't know that you're also angling to get me off the road till the snow eases up."

"I'm hungry," Jimmy announced from the back.

"There's a hamburger stand ahead," Stan said. "We'll have some sandwiches and coffee and then we'll go for a visit. My mother once told me it's not polite to fall in on relatives until after you've eaten."

It was four o'clock before Stan looked at his wife across Janet's living room and said, "Weather's better now, honey. Let's stop loafing and do a little more driving."

■ The windshield wiper on the Norris' car squeaked like a kitten in front of a locked door. It grated on Jeff's nerves, but what bothered him even more was the steady snowfall and the dark sky that made it seem that night had come early. He had slowed his car to the speed limit, but because the road had become slippery, other cars had dropped below the limit and he passed several.

Once he skidded in passing and barely managed to keep his car on the road. Lottie bit her lip but said nothing. She had stopped reading and stopped daydreaming. Bruce had become cranky and she held him in her lap. In the back, Peter was playing with a $3.95 baseball game. He was fascinated not so much by the game but by the multi-colored lights that flashed when he got a hit.

By late afternoon, the snow had let up a little, but Lottie noticed that Jeff looked very tired. He had been driving for hours in the bad weather without stopping. "Let's stop for coffee," Lottie said. "Remember how late you went to bed last night. You need some rest."

"I'm all right," Jeff insisted. "I can go a few more hours yet. I know my capacity."

At six o'clock, Jeff's head started to nod. His hand loosened on the wheel. "Jeff!" Lottie said sharply. Jeff lifted his head quickly and straightened the car, which had started a slight swerve. "Guess I am getting a little bit tired," he admitted. "We'll go another half-hour, then we'll have the coffee."

■ "What time is it?" Stan asked his wife.

Blanche looked at her watch. "Six twenty-five," she said. "Looks more like midnight out."

Stan nodded. "This weather is for ducks," he said.

He rounded a curve cautiously. Because of the poor visibility, he was hugging the right side of the road. Suddenly, a sedan coming toward him on the other side of the road

WARM CLIMES OFFER NO ESCAPE FROM ARTHRITIS

YOUR CHANCES of falling victim to arthritis are just as great whether you live in a warm climate or a cool one. Furthermore, no climate can "cure" this disease, which afflicts more than 12 million Americans.

These are conclusions of research studies conducted by the Arthritis and Rheumatism Foundation and of a U.S. Public Health Survey of chronic diseases.

"Contrary to the widely-held belief that arthritis sufferers get better in a warm, dry climate, it has been found that most experience no noticeable change in their condition," said Ronald W. Lamont-Havers, M.D., the Foundation's medical director.

It is impossible, he said, to predict the effect of a change in climate on any particular patient. Other factors involved in the change—such as rest, type of medical treatment, friends, family, and job—probably play a much greater part than the change itself.

swerved across the middle of the line. "Look out, you fool!" Stan screamed and blew his horn.

■ At 6:20, Jeff Norris knew he felt awfully tired, but he had given himself until 6:30 to stop and he didn't mean to stop before. At 6:23, his head nodded and he caught himself. Lottie was busy keeping Bruce amused and didn't notice anything. At 6:26, Jeff's eyes closed and he felt himself drifting. He heard a horn blow, and he opened his eyes, but it was too late.

■ As the sedan careened across the road directly at him, Stan's wide-awake instincts impelled him to turn sharply to the right. Thus he avoided the disaster of a head-on crash. The sedan gouged and clawed and chewed at the side of Stan's hardtop, then broke away. The hardtop bounced off the road, smashed through a guard rail, and landed in a ditch.

When they opened Stan's belt and helped him out, he was dazed, and had a black eye and lacerations, but that was all. Blanche was hysterical, but she had suffered only some nasty bruises and a sprained knee. Jimmy was crying, but it turned out he wasn't hurt at all, only frightened.

The Arnows would be late getting to Chicago, but they would get there. And Stan Arnow would never again say—even in man-to-man jest—that his wife was a woman with a phobia.

■ As Jeff's car broke off from the one he'd hit, he had one moment of consciousness before the blood began leaping from his mouth, and he blacked out. In that moment, he saw Lottie's head fly forward toward the sharp-edged dashboard knob that waited to drill a hole into her skull. As the car skidded off the road and roared crazily into a tree, he didn't see the unlocked back door suddenly swing open. He didn't see Peter being thrown out, to be killed by an ugly, brain-shattering impact with a jagged rock. He didn't notice little Bruce's body being crushed to death by violent collision with steel and glass.

He couldn't see or feel anything anymore because the steering wheel column on which he was impaled had already choked him off from contact with reality. Unlike his three passengers, Jeff wasn't quite dead when the first bystander came upon the scene.

Living Legends

A series of little known human interest stories about the world's best known people.

by Andrew Robin

THE BOY, whose grandparents were slaves, grew up in Detroit witnessing race riots. Someday he'd do something about it, he thought. He was a well-coordinated youngster, and his mother, a fine musician but a sick woman, recognized that her son was bright. But what could he do and where could he go in a white world?

Her continued illness finally forced the family to move to the drier climate of Albuquerque, New Mexico. Not long afterward, tragedy struck. Within a three-month period, both parents died. The 12-year-old boy and his sister, puzzled and confused, were shipped off to their maternal grandmother in Los Angeles.

In 1917, the sober, athletic youngster was horrified at the Great War. He tried to enlist but he was told to come back in five years when he was 18.

By the time he reached his 18th birthday, the fighting had long since stopped and he was graduating from Jefferson High School as class valedictorian.

Without funds and living in his grandmother's house, he would have to rely on himself to raise enough money to go to college. He was accepted at the University of California, on a scholarship. With his tuition paid, he needed money for his expenses. He was determined that no job would be too menial. In four years he worked as a janitor, a carpet layer, a messboy on a coastal steamer, and an assistant in political science, his major. He also found time to be star guard on three varsity basketball teams, played football, baseball, and was the sports editor of the college yearbook.

And if that wasn't enough, he graduated with the highest honors—*summa cum laude.*

He took his master's degree at UCLA and when he indicated his desire for more study friends and neighbors raised $1000 and he went to Harvard for his Ph.D.

Studying and teaching at London and Capetown, he became a leading authority on race relations.

When World War II broke out, this professor worked for the secret OSS directly under the Joint Chiefs of Staff. He knew colonial peoples and their problems and he could understand the feelings of the oppressed.

His role as a peacemaker was to help him become one of the most notable men of the 20th century, earning him medals and awards including more than two dozen honorary degrees, and the Nobel Peace Prize. Who is this man? (*See answer below.*)

Ralph Bunche, Assistant Secretary General of the United Nations.

But Jeff became very dead indeed when this would-be good Samaritan dragged him from the car to take him to the hospital himself, instead of waiting for a doctor and an ambulance.

The weather cleared up not long afterward, and the stars came out to light up Christmas Eve. In a Wisconsin farmhouse, an elderly couple heard the telephone ring.

The voice on the other end told them that, instead of their daughter and her family, Death had come for Christmas. END

EDITOR'S NOTE: An eight-page pamphlet, "Seat Belts Save Lives," explains why the automotive seat belt is the most effective single item of protective equipment presently available to reduce the toll of traffic injuries and deaths. Single copies are available free from American Medical Association, 535 North Dearborn Street, Chicago 10, Illinois.

Enzymes: Chemical Keys to Health and Disease

(*Continued from page 43*)

shorthand initials are as bewildering as the alphabetized agencies of government. But enzyme initials come excitingly alive if you think of them as names for specific molecules of prodigious importance to your existence.

A rise of LDH in a patient with all the symptoms of an acute heart attack indicates that he probably had had a heart attack and not something else. But LDH is not a specific test for heart disease. Its levels may rise after damage to many kinds of tissues from many causes, including cancer. Symptoms and results of many other tests must be consistent with the suspected disease.

A different enzyme, GOT (glutamic oxaloacetic transaminase), gives independent heart attack information. Heart muscle is rich in GOT and necrosis of heart-muscle cells causes a rise in serum levels of the enzyme. These levels typically increase for several days after an acute heart attack, level off and recede as recovery occurs. Repeated tests help to estimate the amount of heart muscle affected and severity of the attack. Significant increases of both LDH and GOT, or of either enzyme, help the doctor to confirm a diagnosis, but do not *make* the diagnosis.

In some diagnostic dilemmas, absence as well as presence of elevated enzyme levels gives valuable information. Pulmonary embolism is an example. Wandering clots or fragments, often originating in inflamed leg veins (thrombophlebitis), may be carried in the blood to clog distant vessels, particularly in the lungs. Pulmonary embolism can be as immediately fatal as a massive heart attack, or areas of lung tissue may die from interruption of blood supply. Symptoms may sometimes maliciously imitate a heart attack, pneumonia, or other disorders.

Although pulmonary embolism is the most common of all pulmonary diseases among patients in general hospitals, its diagnosis "is one of the most elusive and difficult to establish in medicine," in the opinion of Warren E.C. Wacker, M.D., and Philip J. Snodgrass, M.D., of Harvard Medical School. There is critical need for a precise means of diagnosing this grave disorder, and studies reported by Doctors Wacker and Snodgrass indicate that assays of serum LDH can serve this vital purpose.

If the patient's symptoms fulfill rigid criteria of pulmonary embolism, elevated LDH levels consistently confirm the diagnosis. Plugs in vessels may cause death of lung cells. But, unlike the similar death of heart-muscle cells after coronary thrombosis, there is no outpouring of GOT enzymes. Lung cells are enzymatically different from cells of heart muscle. Thus, if a patient's symptoms are confusingly similar to a heart attack, and his serum LDH rises but GOT does not, coronary thrombosis is ruled out and pulmonary embolism is probable. If *neither* LDH or GOT levels rise in a patient who might have pneumonia or pulmonary embolism, he probably *does* have pneumonia. At least he does not have pulmonary embolism.

SOME enzymes point a little more directly toward specific diseased organs. Elevated acid phosphatase rouses suspicion of prostate cancer; alkaline phosphatase, of bone or biliary tract disease. Another enzyme, GPT (glutamic pyruvic transaminase), is helpful in diagnosing various liver diseases. GPT levels rise precipitously in a person with infectious hepatitis, days before symptoms appear. A piece of tissue taken from the liver can yield much information, but this procedure is not without hazard. Enzyme-screening is much easier, and in epidemics of infectious hepatitis might identify carriers of the disease who are not ill or have not yet developed symptoms.

You can see that a few drops of your blood might contain unique chemical clues indicating the presence of disease long before actual symptoms developed. Routine disease-screening tests of incomparable value might be developed if different cells excrete characteristic chemical messages into body fluids. There is mounting evidence that cells do write unique enzymatic (and enigmatic) messages in molecular "language" that is barely beginning to yield to translation.

UNTIL very recently it was assumed that an enzyme is an enzyme is an enzyme. Now it is known that there are multiple forms of enzymes—"isoenzymes," like isotopes which are slightly different forms of the same chemical element. These enzymes are present in different proportions in different tissues. Stomach tissue may contain large amounts of a certain enzyme, kidney tissue very little, or vice versa. Apparently, different enzyme forms function best under different conditions.

Theoretically, this gives preventive medicine a tremendously potent weapon: discovery of a disordered organ by enzyme clues characteristic of it. But this is unfinished business of biochemical research. Investigators are studying urine, bile, stomach juice, and other body fluids, in addition to blood serum, as possible carriers of extremely small amounts of "diagnostic" enzymes.

No one knows precisely why body fluids may contain enzymes that properly belong inside one's cells. Perhaps disease causes certain cells to produce too many or too few enzymes, upsets subtle balances, or results from such changes, or injures cells so that enzymes leak into body fluids. Whatever the mechanisms, enzymes loom on the medical horizon as powerful diagnostic tools.

Nothing is more universal to life

than enzymes, or more commonplace. There is no life on earth without them. Even viruses, incapable of enzyme-making, nevertheless cannot proliferate without them. Viruses commandeer the ready-made enzymes of cells they invade and convert them, sickeningly, to their own malevolent purposes.

Crude enzyme materials have been used for ages in bread-making, wine-making, cheese-making, leather tanning, and other processes. But purified enzymes are only a quarter of a century old. The first was crystallized from an extract of jack beans by James B. Sumner of Cornell University in 1926. It was urease, an enzyme that breaks down urea. The breakthrough was greeted by less acclaim than skepticism. Pepsin, long known to be "something" in stomach juices, was not isolated in pure form until 1930, by John Howard Northrop of Rockefeller Institute.

"Medical" enzymes currently used in treating disorders are very few compared to the hundreds that populate our cells. Serious attempts to isolate intracellular enzymes did not begin until around the beginning of World War II. Modern medical enzymology began at about the same time as the antibiotic era and was an indispensable part of it, since antibiotics are made by microbial enzymes. Enzymes synthesize molecules that human chemists can't. But practically all those used in current therapy are lytic enzymes. That is, they dissolve something—split molecules into fragments.

This action can be very comforting, in liquefying pus and promoting drainage, and in softening sticky mucous plugs to help patients with bronchial asthma, emphysema, and similar conditions to breathe more freely. It can even be lifesaving. An example: An emaciated 70-year-old woman couldn't quite swallow a huge mouthful of food. The mass lodged in her esophagus, pressed against her windpipe, slowly suffocating her. She was too feeble to stand an operation. Her physicians mixed digestive enzymes in water and told her to sip the liquid slowly. The choking food mass began to disintegrate and melted away completely in a few hours.

NOT all digestive enzymes were invented by the gastrointestinal tract. Papain, an enzyme of a fruit, the papaya, is most familiar as a meat tenderizer. It acts quite similarly to pepsin in digesting protein. Cellase, a purified enzyme developed by Wallerstein Laboratories, is prepared from a fungus. It has the unique ability to digest indigestible cellulose, the "rough stuff" of many coarse foods.

Purification of some enzymes has led to digestant uses quite unrelated to food. Dead tissue, pus, clots, and contaminants must be completely cleaned from wounds to promote healing. This has often been a major surgical procedure. Now the task may be entrusted to enzymes which flush away infection-breeding debris with utmost gentleness—a distant echo from World War I times when maggots were in vogue for cleaning wounds, probably by enzymatic action.

Fibrinolysin is an enzyme of the blood which dissolves tough fibrinous deposits and clots. About two-thirds of the bulk of pus is composed of dead nuclear material of cells, which ribonuclease enzymes can dissolve. The latter are prepared, as Dornase, from beef pancreas, or as streptodornase from streptococcus germs. Elase, a Parke-Davis drug, combines fibrinolysin with deoxyribonuclease. Another combination, Varidase, contains streptodornase with streptokinase which converts a blood protein into fibrinolysin.

Since strep germs make at least 100 other substances, Lederle researchers faced agonizing difficulties in pursuing a clue, unearthed by William Tillett, M.D., that strep enzymes prevent blood from clotting. The first crude concentrates showed clot-dissolving activity expected from streptokinase, but also liquefied pus-containing debris, a quite different enzymatic action. The tagalong enzyme was finally found to be streptodornase.

Trypsin and chymotrypsin, purified pancreatic enzymes, help to counteract inflammation and reduce swelling, as adjuncts in treatment of bruises, fractures, sprained ankles, back injuries, and in some kinds of surgery.

SEVERAL enzymes have limited specific uses. Penicillinase, an enzyme that enables some germs to resist the antibiotic, is of some value in the treatment of slowly-developing allergic reactions to penicillin by "erasing" the drug from the patient's system. Hyaluronidase, which dissolves the "cement" of connective tissue, may be given by a doctor to increase the diffusion of fluids given hypodermically. Male germ cells are rich in hyaluronidase, which assists the tiny cell to penetrate the tough coating of the egg and effect fertilization—enzymatic action at life's very beginning. The pharmaceutical source of hyaluronidase is the testes of mammals.

A special form of chymotrypsin developed by Armour is used only as

WHAT'S AHEAD IN 2000 A.D.?

MORE MOMENTOUS discoveries in biology are likely in the remainder of this century than any produced in all the physical sciences since 1900.

This was the prediction of a university biologist speaking recently at a high school curriculum conference in Boulder, Colorado. Bentley Glass, professor of biology at Johns Hopkins University, said he could foresee these developments by 2000 A.D.:

"We probably will learn not only how to increase the human life span, but how to maintain the vigor of mature life into advanced years. So far, we have not increased the human life span at all. The *average* length of life has gone up, but the maximum does not seem to have changed at all.

"I would suspect that biologists will have learned to create some simple forms of living organisms, something at about the order of complexity of a virus, and that geneticists will have learned how to replace defective genes with sound ones.

"I certainly expect that man will have learned how to conduct artificial photosynthesis and so will have finally assured himself of an inexhaustible—and I hope palatable—food supply.

"Man will certainly have learned to accelerate his own evolution in a desired direction.

"And he probably will have eliminated infectious disease completely."

an aid in cataract surgery. The eye still has to be operated on to remove the diseased lens, but if the surgeon uses an enzyme helper he does not have to cut the tiny ligaments that hold the lens in place. Instead, he injects chymotrypsin, which selectively dissolves the anchor-fibers, and the lens floats loose.

Disfiguring scars and intestinal adhesions following surgery may some day be "erased" by an enzyme that is in early stages of investigation. Called procollagenase, the enzyme can dissolve material from which tough fibers develop.

Fibrinolysin dissolves clots in leg veins with a varying degree of success, depending on how soon it is given after the clot forms. Can enzymes dissolve clots in coronary or cerebral arteries associated with heart attacks or strokes? Such uses of great promise are an aspect of meticulous clinical observations by physicians, mostly unheralded, which establish the uses, doses, indications, safeguards, and contraindications of every new drug before it is released for general medical use.

Fibrinolysin is under investigation as a treatment for hyaline membrane disease of the newborn, a condition in which air spaces of the lungs are suffocatingly blocked by layers of fibrinous material similar to that on which a blood clot is built.

Another vital segment of enzyme research is not immediately concerned with treatment of disease, but with desperate need to know more about the biochemical basis of disease and of health. Our genes and nucleic acids which carry the molecular codes for everything we inherit express themselves through enzyme synthesis and activity. "One gene, one enzyme" is a theory with many adherents—the gene dictates the making of a particular enzyme. Since your genes make you biologically unique, without an exact counterpart in the universe, your thousands of enzymes share this uniqueness too. No doubt you lack some of the other fellow's enzymes or possess some that he does not.

What happens if you do lack a particular enzyme? Perhaps nothing at all, perhaps something you never notice, perhaps something quite serious. It depends on the job of the missing enzyme and whether other enzymes or environment can "cover up" for it.

YOU can be absolutely certain that you do lack one specific liver enzyme that most creatures possess. It can be a fatal deficiency. Throughout history, not all of it ancient history either, thousands of people have died from this deficiency—killed by a specific molecule, a molecule that wasn't there. It is a liver enzyme necessary for one chemical step in converting glucose into vitamin C. Because man, monkeys, a few small mammals, and a bird, the redvented bulbul, do not have this liver enzyme, they must obtain their vitamin C pre-formed or die of scurvy. But as long as you get your vitamin C from foods or pills, your missing enzyme is no threat whatever.

Another enzyme deficiency never manifests itself unless something in the environment explodes it into disease. Victims suffer acute hemolytic anemia, collapse of red blood cells,

FIRE AT CHRISTMAS

Probably no clinical condition is more tragic than that of a severely burned person who requires months of hospitalization. Prevention lies mostly in the home, not in the medical office. Safety advice should mean something to every homemaker and parent.

Danger of fire is especially great during the Christmas season—the hazards spring from using electricity, heating the home, smoking, drinking alcohol, messy housekeeping, the Christmas tree and its lighting and decorations, toys and gift wrapping, and flammable special costumes. Selected safety pointers are given below. Further advice is readily obtainable from your local fire department.

What to Do

1. Prepare a plan for escape in case of fire.
2. Buy a small tree; set it away from the fireplace and heaters where it does not block exits. Stand it in water. Discard it when needles start to fall.
3. Use electric tree lights, not candles. Light cords should be unfrayed and the switch some distance from the tree. Don't use flammable decorations or wrap tissue paper about the lights. Turn off the lights when you leave the house. Set up electric trains away from the tree and flammable items.
4. Obtain a commercial fire-retarding chemical or make up an inexpensive spray consisting of four ounces of boric acid and nine ounces of borax to a gallon of water. Apply to the tree, to nearby flammable items, and flammable costumes.
5. Instruct the baby sitter, using rules obtainable from the fire department.
6. Be particularly alert to the fire danger when entertaining at Christmas parties.
7. Insist upon tidy housekeeping. Provide plenty of ash trays, clean up gift wrappings immediately, and keep matches, lighters, and lighter fuels from children.

Clip and retain on file card for future reference

after eating fava beans or inhaling pollen of the plants. The beans are harmless to most of the human race. Susceptible persons lack a red blood cell enzyme, and because this molecule is absent the beans are toxic to them. They may go through life entirely unaffected by their missing enzyme if they never encounter fava beans. The condition is hereditary; what is missing is the gene that creates the enzyme. The peculiar defect is most common among Mediterranean and African people. Oddly, lack of the enzyme confers advantages too. The missing molecule seems to enhance resistance to malaria.

A score or so of disorders are now known to be "molecular diseases" provoked by missing enzyme molecules. One of the most studied is phenylketonuria. The afflicted infant lacks a single enzyme that oxidizes phenylalanine, an amino acid of protein foods, to tyrosine, another amino acid. Toxic products accumulate and result in severe mental retardation, unless foods from which phenylalaline is removed by costly pharmaceutical processing succeed in mitigating the disorder.

SUCH molecular diseases, also classified as "inborn errors of metabolism," which pins the guilt on genes responsible for enzyme production, are most likely to be discovered if obvious illness results. How many such disorders exist without causing serious symptoms, or are masked by classic names—rheumatism, diabetes, migraine, cataract—that describe symptoms but not processes, is anybody's guess. Linus Pauling, Nobel prize winner in chemistry, says "I think it not unlikely that there are hundreds and thousands of such diseases."

We must look partly to enzymes for respectful understanding of medicines we take. Suppose you swallowed a drug and it circulated unchanged in your blood the rest of your life. A cheap way to get a lifetime dose, to be sure, but we would all become ambulant pharmacopoeias in no time. We have to get rid of drugs we take or we're in trouble.

Penicillin, tetracycline antibiotics, phenobarbital, and some other drugs are excreted by the kidneys more or less unchanged. But the majority of drugs are converted to inactive forms for excretion by enzymes of the liver, particularly the enzyme systems of microsomes, minute organelles of liver cells. Our liver enzymes are marvelous detoxifiers, not only of medicines but of countless other things that get into the body.

You might have some extraordinary reaction to some drug which never causes that effect in most people. Why? Are you abnormal? Not at all. You are merely unique. Drugs are standardized, but people are not. Your enzymes may be a little different. People who lack the red cell enzyme that leaves them susceptible to fava bean poisoning are peculiarly liable to undesirable reactions from aspirin, phenacetin, sulfonamides, and antimalarial drugs. You can see that indiscriminate medicine-taking without a physician's advice can have unexpected hazards.

Most drugs are changed by enzymes or work through enzymes. The active part of some drugs is not necessarily the intact molecule, but some enzyme-transformed fragment that works its benefits in obscure ways. Some drugs, such as monoamine-oxidase inhibitors used as anti-depressants, restrain the activities of a particular enzyme but this does not totally explain their actions. Swarms of molecular mysteries remain to engage pharmaceutical researchers for decades to come.

Enzyme studies exemplify the complexity and promise of today's medical research, interwoven with special functions of universities, medical schools, clinicians, governments, pharmaceutical laboratories, and world scientists of many disciplines. It is one thing to prepare tiny amounts of an enzyme in a research laboratory, quite another to produce stable, standardized doses in quantities sufficient to treat patients. This is the special task of the pharmaceutical industry.

Chymotrypsin was developed by Armour from basic work done at Rockefeller Institute. Lederle Laboratories spent $250,000 to obtain the first half ounce of pure streptodornase from bacteria. Individual preparation of enough fibrinolysin to treat a single patient would cost about $2000. The fact that many enzyme dosages are available at prices well within range of the patient reflects the scientific skills and facilities of such pharmaceutical companies as Parke-Davis, Ortho, Merck, Armour, Wallerstein Laboratories, Lederle, National Drug, Organon, and some others. "Enzyme taming" is an exacting specialty full of special difficulties and is but a small though growing part of the pharmaceutical industry.

WHAT of enzyme drugs of tomorrow? The titanic surge of research in molecular biology sweeps toward daring hopes of creating some chemical stuffs of life. Sequences of the hundreds of atoms that compose the molecule of ribonuclease, an enzyme, and of one other complex protein molecule, insulin, have been mapped in precise detail. But it is a flat map, as if the coiled and curled molecules were ironed out on a table. The next giant step, already in stride, is to map protein molecules in three dimensions. After that the path stretches alluringly toward synthesis of artificial enzymes and other proteins.

What if researchers do produce artificial enzymes? The most miraculous enzymes are those essential to chemical processes of life that transpire within our cells. Our enzymes

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PHYSICIANS: Reprints of all published medical studies on request.

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are expendable and we continually renew and replace them. How may artificial enzymes be administered? One answer: "Sew" them into the body.

The artificial enzymes may be loaded into a porous plastic tube, not unlike a ciagarette filter in principle, that is placed permanently within an artery of a baby with phenylketonuria, or a diabetic, or a patient with any disease that may eventually be found to be controllable by enzymatic means. This prediction by Linus Pauling will, he believes, be considered timid and unimaginative 50 years from now. He concedes that the idea seems fantastic now.

But antibiotics were fantastically impossible 50 years ago. END

Answers to Your Christmas Card Questions

(*Continued from page 41*)

Yes. To save time, many persons with big mailing lists print or engrave their names. But it is friendlier to add a handwritten message, even when a card is printed or engraved.

Are "Mr. and Mrs." still used on Christmas cards?

Not much. Today's trend is away from printing or engraving cold formal names like "Mr. and Mrs. James Van Walker." Never sign your Christmas card—or any letter, for that matter—"Mr.," "Mrs.," "Miss," or any other title. If you want your Christmas cards to be informal, your name on them also must be informal.

What if we want to engrave "Mr. and Mrs." on a formal card—where should it appear?

Always at the top. If it's at the bottom, it might look like a signature.

Is it correct to write on Christmas cards?

Definitely! Whether or not your card is printed or engraved, a simple handwritten message always warms it up. No need to leave the space empty. It helps keep your friendships flourishing.

Must I send a Christmas card to everybody who sends one to us?

No. A Christmas card doesn't need a reply. It should be a spontaneous, friendly greeting to a friend. If you're selective in sending your cards, you'll have more time to wish "Merry Christmas" to the people you really want to. But a thoughtful Christmas card can help turn an acquaintance into a friend. To many persons, your Christmas card means far more than you may realize. If you decide to "answer" some cards, your keynote should be: "Our late wishes are just as merry."

Are religious cards in style?

They always will be. Isn't Christmas, after all, our most religious holiday? Since World War II, there has been a growing trend toward more religious cards. The Madonna is the most popular religious card. The seven most popular cards of the 270,000 sold by the National Gallery of Art in Washington from its collection last year had religious themes. Four sold more than 20,000 each.

Are family photographs all right to send as Christmas cards?

Certainly! This is a superb sentimental keepsake for intimate friends—some will keep them as a record of your children's year-to-year development. But don't send your "family portrait" to casual acquaintances.

Are printed or mimeographed "Family Newsletter" Christmas cards proper to send?

Yes, if they are brief, modest, and sent only to close friends. Mere acquaintances aren't interested in an encyclopedic history of what you and your family did during the year. The mistake of most newsletter senders is making them too windy. People are busy at Christmas and haven't time to read verbose documents.

Can handmade cards be sent?

Why not? Many a handmade card can later usefully serve as a bookmark or decoration. Most important, the recipient is generally flattered that you took the time and trouble to make it yourself.

Is original verse all right on Christmas cards?

Only if it's good or amusing. Don't try to immortalize your dreadful poetry on an expensively printed Christmas card as some people do.

May colored ink be used?

A delightful idea! A Christmas red or green ink often adds sparkle to your message, signature, or envelope. It also helps carry out the color scheme of your cards.

Should I send Christmas cards to my Jewish friends?

Not to religious Orthodox Jews. But you can send them to your other Jewish friends who are Reform or Conservative. Don't send religious cards, though, which portray the Nativity, Magi, or similar New Testament aspects.

Should I send Christmas cards to tradesmen, even if I tip them or give them a present?

You can accompany your tip or present with a card. Everybody likes

to receive a Christmas card whether it is your mailman, milkman, errand boy, baby sitter, butcher, baker, or candlestick-maker.

Should I send my doctor a Christmas card?

Why not? Busy as he is, he's certain to appreciate your thoughtfulness. Special Christmas cards are even manufactured "For my doctor" and "For my nurse."

How should I address a card if I know only one of a couple?

Always address it to the husband and wife regardless.

Is the expression "and family" proper when addressing cards?

No. It is better to address the card "The Waynes" Or: "The Donald Waynes."

Should I write my return address on my Christmas cards?

Yes. It's both proper and practical. Your return address should be written or printed on the back flap of your envelope. Printed stickers of your name and address may also be used. Your return address not only

ensures that your cards arrive but enables you and your friends to get address books up to date.

How should I address my Christmas card to my clergyman?

To a Protestant minister (without a doctor's degree) write: The Reverend John Wilson. To a Protestant minister (with a doctor's degree): The Reverend Dr. Paul Hill, D.D. To a minister and his wife: The Reverend (or The Rev. Dr.) and Mrs. Paul Hill.

To a Roman Catholic priest, write: The Reverend Joseph Richard Hogan. (This is the correct form of address also for Greek Orthodox priests and Anglican priests who are addressed as "Father.") The initials of the order may be added: The Rev. Joseph Richard Hogan, S.J. To a *Monsignor:* The Right Reverend Monsignor Joseph E. Murray, S.J. or, "The Very Reverend Monsignor . . .," depending on his rank.

Should my Christmas cards be mailed sealed or unsealed?

First-class mail is first-class taste! It is more flattering to send your Christmas cards—or any other communications requiring an envelope—by first-class mail. By spending four cents postage on each friend, your cards may carry written messages, are delivered quicker, are forwarded without additional charge if necessary, and, if undelivered, are returned to your address on the envelope.

When should my Christmas cards be mailed?

Early—so that they arrive *before* Christmas. But don't send them the day after Thanksgiving as some eager beavers do. A Christmas card means little then and by the time your other cards arrive, people have frequently lost this too-early one. A premature mailing also looks like a bid for a return card.

May I send a Christmas card to a friend who has had a recent death in the family?

No objection if it is a loving, thoughtful, or religious card. People don't shut off warm contacts with their friends during their periods of mourning.

Should a wife send Christmas cards to her husband's business associates?

Definitely not! Keep your business and personal lists separate! When business Christmas cards are sent, the company—not the executive or his wife—should send them, especially if a wife isn't a member of the firm or isn't known to its customers.

Where should our Christmas cards be displayed?

Any place you wish. Some families prop them up on the mantlepiece, around the tree, pin them on doors, or hang them in the English fashion from the ceiling.

What should we do with our Christmas cards after the holidays?

It's not necessary to throw them away. I send mine to the children's ward of my local hospital. This helps spread the Christmas cheer into the next year—after the holiday glitter is gone. The young patients can cut out the pictures or even make handmade cards from them for the following year. END

HISTORY OF CHRISTMAS CARDS

Though the ancient Chinese exchanged New Year's cards, the first known modern Christmas card wasn't sent until 1843. Sir Henry Cole, an imaginative and distinguished London museum director, had his artist friend, J. C. Horsley, design 1000 cards for him which bore the now standard greeting: "A Merry Christmas and Happy New Year."

A year later Dickens' *Christmas Carol* was published, immortalizing Scrooge and Tiny Tim.

In the United States, the "Father of the American Christmas Card" was Louis Prang, a German immigrant lithographer in Roxbury, Massachusetts, who began commercially producing Christmas cards in 1875. Prang perfected a lithographic process, using as many as 20 colors on his cards.

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by PAUL NEUHAUS

It's Never Too Late to Learn

There are 22 million adult music-makers in the United States today, most of them showing no signs of slowing down musically or otherwise. The average age of the Sirovich group is 72 years.

A PAIR of battered violins, a borrowed flute, and a trio of sexagenarians formed the nucleus of a music group that is now the envy of many community recreation programs in the United States.

The group is the Sirovich Day Center Symphony, now enjoying its 11th season of entertaining the hundreds of day-center senior citizens and scores of charity organizations in the New York City area.

According to Miss Frances King, director of the day center, the 18-member symphony has become a major drawing card for people over 60 who visit the center for the variety of cultural, educational, and recreational activities. These musicians have been described also as the best examples of the spirit of the 780 Sirovich senior citizens who enjoy the companionship and the opportunities to use their own active imaginations.

"They are as enthusiastic about their music today as the three founders were

"I like all good music," says Jose Bass, 77, who has played three years with the group.

Many members, like 72-year-old Bill Evans (center), have been making music for years.

Colleagues claim drummer Stephen Wright, 68, has as much rhythm now as years ago.

Bob Beauchamp (left) and Bruce Healy, both in their 70's, play in the string section.

Oldest member of the symphony is bass player John Kouba, 84. Kouba plays the clarinet and violin as well. He came to the center because he heard of the orchestra.

11 years ago," says Miss King. "We certainly have come a long way since the first days of our 'pawnshop' ensemble.

"The formation of the symphony orchestra was just what was needed to give us the well-rounded program hoped for when the center was established in 1949. The orchestra was started a year later and the entire program has been enhanced by the group's music."

Every member of the group is an enthusiastic musician. Mrs. Ray Alpert, who commutes from Long Island to the day center, has enrolled in a music class at Brooklyn College to improve her violin technique. Leo Sicular, a retired postman who plays the clarinet, never thought his experience in a post office band would be enough for symphony work. He never misses a musical gathering. Lewis Michele, who started to play the violin when he was 60, closes his shoe shop on mornings when the group meets.

"Our secret to success," says Miss King, "is the spirit with which the senior citizens are welcomed to the center and which they pass on to new members. For instance, when our music group started, there were only three players and no one owned an instrument. However, their personal warmth, enthusiasm, and desire to organize a music group soon spread—and the symphony has been an important part of our activities ever since."

According to Marion Egbert, educational consultant for the American Music Conference, "The 18 musicians at Sirovich Day Center are typical of the millions of adults who are either beginning or resuming musical activities. In addition to realizing that it is never too late to learn, more and more are turning to the arts—especially music—as a means of relaxing and as an outlet for their creative talents. The Sirovich group is proof that music-making offers more than its share of benefits. Seldom will you find a musician who does not have companionship or one who doesn't get that little extra out of life."

Leo Sicular, 70, performed with a post office band. He never guessed his experience would lead him into symphonic work.

As one of the elder violinists says, "Many of our members have found that through music one can begin to enjoy life again." END

NOTE: The Sirovich Day Center is supported by the William Sirovich Memorial Association in cooperation with the New York Welfare Department.

Spats and all, Harry Forman, 68, waits expectantly for the downbeat at rehearsal.

Enthusiastic Mrs. Ray Alpert has enrolled in a music class to improve her technique.

Cards That Fight Disease

(*Continued from page 38*)

3. *Nutrition,* including high-protein food research and supplementary child-feeding.

4. *Family and Child Social Services* including teaching of homecraft and mothercraft.

To carry out these four programs, doctors, nurses, and other trained personnel are desperately needed. That's why UNICEF also aids in the medical training projects conducted in hospitals and health centers.

Working closely with the World Health Organization (WHO)—its sister United Nations body—UNICEF is the largest international agency devoted solely to the health of children and their mothers. Today UNICEF has two extra letters in its title because the words "Emergency" and "International" were dropped from its original title in 1953.

One of UNICEF'S biggest battles is against the stubborn superstitions about disease. Numerous parents still believe such nonsense as:

—Epilepsy is caused by evil spirits which you can blow out of your baby's nose when he sleeps.

—Emaciation can be cured by making a bracelet of dried wheat for your baby and throwing it into flowing water after 11 days.

—Tuberculosis is checked by soaking 21 grains of rice in the juice of an ak plant and administering one grain daily to the patient.

Is it any wonder why an authority on India recently observed, "More American children live to be 65 than Indian children live to be five"? END

Let's Talk About Food

(*Continued from page 20*)

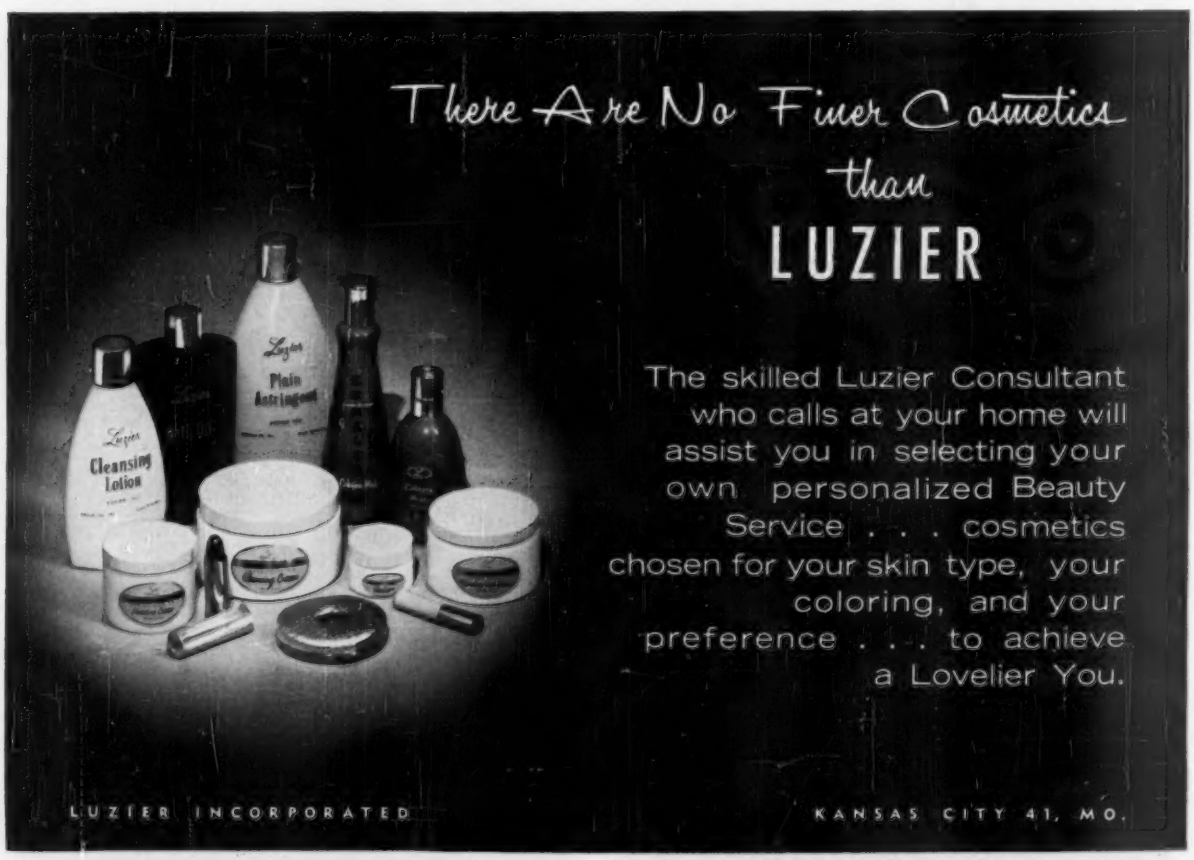
the artificial beverages are fortified with vitamin C, they could at least be counted on to provide that.

My family won't eat vegetables or liver. What should I substitute for these foods so the family will get the important nutrients they are missing?

Vegetables are a necessary part of our daily diet, and it would be most difficult to devise a nutritious diet eliminating them completely. With the variety of vegetables on the market today and the many ways of preparing them, it is difficult to imagine that none of the vegetables is liked.

Try some new recipes for vegetable preparation and perhaps your family will have a change of heart. Perhaps you could start out by cooking your vegetables in combinations with other foods, *e.g.,* stuffed green peppers or tomatoes, stews, green beans with slivered almonds. In this way, your family might develop a taste for vegetables and discover what they have been missing all this time. Of course, it isn't necessary to cook vegetables; many of them are most appetizing served raw.

Liver is an excellent source of vitamin A, riboflavin, niacin, and iron, in addition to being a good source of protein. Other foods which would be good sources of vitamin A, riboflavin, and iron are green leafy vegetables and eggs. Milk is an excellent source of riboflavin. Beef, pork, and lamb are good sources of riboflavin, niacin, and iron. If some of these foods are included in the diet, the same nutrients will be obtained as from liver. END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TIPS *for your home and family*

SAVE ON YOUR INCOME TAX NOW . . . AVOID DANGEROUS CHRISTMAS TOYS . . . SAFETY ON ICE

WHAT KIND OF TOYS should you select for your youngsters this Christmas? It doesn't make any difference if you are shopping for baby or for a 10-year-old, look for the following safety features in any purchase you make:

- Children are tough on toys--buy those that are substantially built so they take hard wear and tear. Beware of small toys that can be swallowed, flammable toys, and toys with rough or sharp edges.
- All electric toys should be safe--look for the UL (Underwriters Laboratory) label on the cord and the toy itself.
- Avoid toys made of lead or colored with lead-based paints--the swallowing of poisonous amounts of lead by children who chew the paint off toys often causes illness.
- Baby's toys should be too large to be put into the mouth, washable, lightweight, and made of non-brittle material.
- Don't buy shooting toys that endanger eyes, paint sets that contain poisonous paints, or dangerous chemical sets unless you are sure the youngster can safely take care of these toys.

IT'S THE PARENTS' RESPONSIBILITY to instruct the child in the proper way to use the new toy, to inspect the toy regularly for possible broken edges which may scratch, and to assist children in acquiring the skill before trusting them alone with toys that require special handling.

ALTHOUGH YOU HAVE UNTIL APRIL 15 to file your income tax, you may be able to lighten your tax load by planning your financial affairs so as to pay the lowest tax legally possible. Here are a few points to consider before 1961 folds to an end.

MEDICAL EXPENSES. These expenses are deductible only in the year they are paid, and generally you can deduct only to the extent that these expenses exceed 3% of your adjusted gross income. Let's say you have an adjusted gross income of $9000, and your itemized medical expenses for 1961 were $480.

Adjusted gross income		$9000
1961 medical expenses	$480	
Less 3% of $9000	$270	
Medical expenses to be deducted	$210	

IF YOU HAVEN'T PAID your medical bills and there is a chance that you won't pay them until next month (which is also next year), you might save a few dollars by borrowing the money and paying the bills so they can be deducted from your 1961 tax bill. If you decided to pay half of your $480 medical bill in 1961 ($240), and the other half in 1962, and you had no other significant medical expenses in 1962, you would not be entitled to any deduction for

(over)

medical expenses in either year. That's why you can save money by bunching your medical bills.

Adjusted gross income		$9000
Medical expenses	$240	
Less 3% of $9000	$270	
Medical expenses to be deducated	0	

THERE IS ALSO THE CHANCE that your adjusted gross income will increase in 1962, thus driving up the three percent base figure. If your income went up to $9500, the three percent figure would jump from $270 (3% of $9000), to $285 (3% of $9500).

IF YOUR PHYSICIAN advised you to install a portable air conditioner in your bedroom as a therapeutic measure, now would be the time to buy and install the set. Prices would be cheaper, and you can deduct the cost as a medical expense.

YOU MAY ALSO CONSIDER PAYING the premiums on accident and health insurance policies which provide reimbursement for hospitalization and surgical fees. These premiums are deductible.

TRANSPORTATION COSTS to and from your doctor's office are deductible. Medicine and drugs are considered a medical expense only to the extent that the costs exceed 1% of the adjusted gross income. The excess is listed with other medical expenses.

IF YOU HAVE A YOUNGSTER IN COLLEGE look closely at the tuition bill. In most cases you will find a student health fee ranging from $5 to $50. This is a medical expense which is deductible.

ALSO DEDUCTIBLE are medical expenses for hospital and nursing care; laboratory, surgical, and dental fees; x-rays; artificial teeth and limbs; crutches, and seeing eye dogs.

ACCORDING TO THE INTERNAL REVENUE SERVICE, medical expenses are expenses incurred primarily for the prevention or alleviation of a physical or mental defect or illness. This includes treatments, diagnosis, or cure of disease.

ICE SKATING alone on frozen ponds, streams, or other bodies of water can be dangerous. It's best to have someone watching you even though it may be from the shore. It has been proved that accidents on ice are almost always preventable. So play it safe. Make sure the ice has been tested or that it is at least two inches thick--otherwise you may get dunked.

IF YOU SEE A PERSON BREAK THROUGH ICE, yell for help immediately. Then throw a rope, or extend a ladder, pole, long branch, or plank to the victim. When others are about, use the human chain system of rescue: The first person should cautiously slide on his stomach out on the ice and grasp the victim's wrists. The second person holds onto the ankles of the first person, and the third person holds on to the ankles of the second person.

IF THERE'S NO ONE AROUND and you're the victim, don't panic. Support your body by resting your arms on the ice, and then edge forward until you reach solid ice.

Dennis Orphan

A Holiday Guide to Nuts

(*Continued from page 50*)

Pour into pastry shell. Bake in 400°F. (hot) oven 15 minutes; reduce heat to 350°F. (moderate) and bake an additional 30 to 35 minutes. Filling should be slightly less set in center than around edge. Note: Omit salt if salted nuts are used.

Yule Logs

- 1½ cups sugar-coated rice cereal
- ½ cup chopped almonds
- ¼ cup finely-cut candied cherries
- ¼ cup finely-cut dates
- ¼ cup finely-cut dried apricots
- ⅔ cup light corn syrup
- 3 tablespoons honey
- ½ teaspoon vinegar
- ¼ teaspoon salt
- 1½ tablespoons butter or margarine
- ¼ teaspoon grated orange rind
- ¼ teaspoon grated lemon rind
- ½ package (4 squares) semisweet chocolate

Combine cereal, nuts, cherries, dates, and apricots in greased bowl. Set aside. Combine syrup, honey, vinegar, and salt in a small saucepan. Place over low heat and bring to a boil, stirring well. Then cook, stirring occasionally, until a small amount of mixture forms a hard ball in cold water (or to a temperature of 250°F.). Remove from heat. Add butter, orange and lemon rind and stir until blended. Pour hot syrup over cereal mixture and mix quickly. Butter hands and shape mixture into 2 logs about 1½ inches thick. Cool 15 minutes. Heat chocolate over hot water until partially melted, then remove from hot water and stir rapidly until entirely melted. Pour over logs and, using a spatula to spread, coat logs with the chocolate, leaving ends uncoated. When chocolate is firm, but not hard, make rough bark design by marking, lengthwise, with tines of fork. To serve, cut into ½-inch slices. Makes about 30 slices.

Walnut Ambrosia Cakes

- 1 9-ounce package yellow cake mix
- ¼ cup orange juice
- 1 teaspoon grated orange rind
- ½ cup finely-chopped walnuts
- 6 walnut halves

Orange Syrup

- ¼ cup orange juice
- 2 tablespoons sugar
- ½ teaspoon non-alcoholic brandy flavoring

Coconut Custard Sauce

- 2 egg yolks
- ½ cup powdered sugar
- Pinch of salt
- 1 teaspoon non-alcoholic brandy flavoring
- ½ cup whipping cream
- ⅓ cup shredded coconut

Prepare cake mix according to package directions substituting ¼ cup orange juice and ¼ cup water for the ½ cup water. Add orange rind and beat until well blended. Fold in walnuts. Pour into greased and floured fluted molds or large muffin cups 3 x 1½ inches. Bake at 350°F. 15 to 20 minutes. Turn cake upside down on rack to cool. Spoon a little Orange Syrup over each cake. Garnish with a small puff of whipped cream and a walnut half. Serve with Coconut Custard Sauce.

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Orange Syrup: Heat orange juice, sugar, and brandy flavoring in a small saucepan until liquid comes to a boil. Simmer 2 to 3 minutes; cool.

Coconut Custard Sauce: Beat egg yolks, sifted powdered sugar, salt, and brandy flavoring until thick and lemon colored. Whip cream until stiff. Save enough to top each cake lightly; fold remainder into sauce along with shredded coconut.

Fruit cakes carry their own cargo of Christmas nuts. So do many holiday cookies of assorted shapes and flavors. Although we live in the jet age, most of us still cherish gifts of homemade cakes and cookies from friends and relatives. Yuletime cookies, easy to bake at home, offer the teen-age cook one of the happiest solutions to the problem of what to give for Christmas. So do special nut-enriched quick breads, beautifully packed and ribbon-tied, to enliven the breakfast of relatives and friends.

Light Fruit Cake

- 1 pound (3 cups) pecans or blanched whole almonds, chopped
- 1 pound (2½ cups) sliced candied pineapple
- 15-ounce box white raisins, cut in half
- ½ pound (2¼ cups) sliced citron
- ½ pound (1¼ cups) glacé cherries, cut in half
- ½ cup diced preserved lemon peel
- ½ cup diced preserved orange peel
- 2½ cups sifted all-purpose flour
- 1 teaspoon salt
- 2 teaspoons double-acting baking powder
- 1 cup sugar
- 2 teaspoons pure vanilla extract
- 1 cup shortening
- 5 eggs, unbeaten
- ¼ cup milk

Mix together almonds and fruit and set aside. Sift together flour, salt, and baking powder and set aside. Gradually blend sugar and pure vanilla extract with shortening. Mix until fluffy. Beat in eggs, one at a time. Stir in fruit and almonds. Add dry ingredients alternately with milk, mixing well after each addition. Line a greased 10 x 4-inch tube-cake pan with brown paper; grease paper and flour lightly. Add cake dough. Bake in a preheated very slow oven (275°F.) 3½ hours or until a cake tester inserted in the center comes out clean. (Keep a large pan of hot water on a rack underneath cake throughout the baking period to prevent the cake from becoming too dry.) Cool in pan 30 minutes. Turn out onto a wire rack to finish cooling. Store in a tightly closed tin box. Yields 6 pounds.

Vanilla Citron Almond Cake

- 1 cup chopped blanched almonds
- 1 cup diced citron
- 2 cups sifted all-purpose flour
- ¼ teaspoon salt
- 2 teaspoons double-acting baking powder
- 1⅓ cups sugar
- ⅔ cup butter or margarine
- 2 teaspoons pure vanilla extract
- ½ teaspoon pure almond extract
- 4 egg whites, unbeaten
- ½ cup milk

Mix almonds with citron and set aside. Sift together flour, salt, and baking powder and set aside. Gradually blend sugar with butter or margarine and pure vanilla and almond extracts. Beat in egg whites, one at a time. Stir in almonds and citron. Add flour mixture alternately with milk, mixing well after each addition. Turn batter into a well-greased, lightly-floured 9 x 5 x 3-inch loaf-cake pan. Bake in a preheated moderate oven (350°F.) 70 minutes. Cool in pan 10 minutes. Turn out onto wire rack to finish cooling. Store in a tightly-closed tin box.

Maplenut Cookies

- 1 cup butter or margarine, soft
- 1½ teaspoons vanilla
- ¾ cup sifted confectioners' sugar
- 1 egg
- 2¼ cups sifted all-purpose flour
- 1 cup rolled oats (quick or old-fashioned, uncooked)

Maplenut Topping

- ⅓ cup maple-blended syrup
- ½ cup chopped nutmeats

Beat butter and vanilla together until creamy. Add sugar gradually, beating until fluffy. Beat in egg. Add flour; mix well. Stir in oats. Chill in refrigerator several hours or overnight. Form dough into small balls and place on ungreased cookie sheets. With thumb, make a depression in center of each cookie; place small amount of maplenut topping (made by combining syrup and nutmeats) in each depression. Bake in preheated oven (325°F.) 15 to 20 minutes or until delicately brown around edges.

Holiday Nut Bread

- ¾ cup sugar
- 1 egg, beaten
- 1 cup milk
- 1¾ cups sifted all-purpose flour
- 3 teaspoons baking powder
- ½ teaspoon salt
- 1 cup coarsely-chopped walnuts
- ¾ cup rolled oats (quick or old-fashioned, uncooked)

Combine sugar, egg, and milk in bowl. Sift flour, baking powder, and salt together. Add sifted dry ingredients, walnuts, and rolled oats to liquid mixture. Mix dry ingredients until evenly moistened. Let stand 10 minutes. Pour into greased paper-lined loaf pan (1-pound size). Bake in a moderate oven (350°F.) for 60 to 70 minutes. Remove from pan and cool on rack. For ease in slicing, store in breadbox one day.

Homemade nut candies in smart boxes under the tree, in glass bowls and colored baskets bright with ribbon and little bells, in small bags made of metallic paper tucked in the children's stockings—certainly confections made by generous hands are part of the giving season.

Butterscotch Penuche

- 1 jar (7½ ounces) marshmallow cream
- ⅔ cup evaporated milk
- ⅓ cup butter
- 1¾ cups sugar
- ¼ teaspoon salt
- 1 6-ounce package (1 cup) butterscotch morsels
- 1 cup coarsely-chopped nuts

Combine marshmallow cream, evaporated milk, butter, sugar, and salt in large saucepan. Place over medium heat; bring to full boil, stirring constantly. Boil 5 minutes, stirring constantly. Remove from heat. Add butterscotch morsels; stir until smooth. Stir in chopped nuts. Turn into buttered 8-inch-square pan. Chill until firm. Makes about 2¼ pounds.

Creamy Fudge Balls

- 1 jar (7½ ounces) marshmallow cream
- ⅔ cup evaporated milk
- ¼ cup butter
- 1½ cups sugar
- ¼ teaspoon salt
- 2 6-ounce packages (1 cup each) semisweet chocolate morsels
- 1 teaspoon vanilla
- ½ cup finely-chopped nuts (Brazil, hazel, or walnuts, etc.)

Combine marshmallow cream, evaporated milk, butter, sugar, and salt in saucepan. Bring to a full rolling boil, stirring constantly. Boil 4 minutes over moderate heat, stirring constantly. Remove from heat. Add semisweet chocolate morsels and vanilla; stir until smooth. Add nuts, if desired. Turn into greased shallow pan. Cool until mixture can be easily handled. Form into 1-inch balls. Roll half the balls into chopped nuts. Yield: about 2¼ pounds of fudge balls.

Glace Nuts

- 1½ cups sugar
- ½ cup light or dark corn syrup
- ½ cup water
- ½ teaspoon salt
- 3 cups pecans and walnuts, mixed
- 2 tablespoons butter or margarine
- 1 teaspoon vanilla

Combine sugar, corn syrup, water, and salt in a heavy saucepan. Stir over low heat until sugar is dissolved, then cook over medium heat, without stirring, to hard crack stage (300°F.) or until a small amount of syrup separates into hard and brittle threads when dropped into cold water. Meanwhile spread nuts in a shallow pan and heat in a moderate oven (350°F.) for 10 minutes. Reduce heat under candy mixture to very low. Add nuts, butter or margarine, and vanilla. Stir until nuts are coated and butter or margarine is melted. Remove from heat; turn out into a large coarse sieve; set over a pan for 1 minute to drain off excess syrup; then spread nuts on greased pan and separate with forks. If desired, saucepan can be placed over boiling water to keep warm, and nuts removed separately with forks onto greased pan. END

a letter from STAN DELAPLANE

I CERTAINLY do not intend to blow the whistle on Christmas nor its goodies.

As of the other day I spoke of billfolds for gentlemen. Pointing out in a sage way that gents generally have no banknotes to put in said billfolds which will be gift-wrapped this Yule.

I would speak today of gifts for ladies. Ladies may accept only gifts of candy and flowers. These are the ground rules as laid down by Emily Post.

Don't let this stop you, however, if you have the idea and the ready cash for a set of stone martens. The lady will forgive you for being a boor.

☆ ☆ ☆

Most gentlemen will get billfolds for Christmas. Most ladies will receive perfume. The ladies are better off in this respect. The gentleman has nothing to put in his billfold but revoked credit cards. The lady at least has something to put the perfume on.

Ladies put perfume behind their ears. This has long been a mystery to me. I am a straightforward type. I look ladies directly in the eye and seldom go around sniffing behind their ears.

Ladies wear perfumes with names that I am afraid to reprint. If these names mean what I think they mean.

Perfumes are called "Nuit de Passion." Which is French, I think, for "the night they passed the onions."

In the ads for perfumes, there is usually a gentleman with long hair sawing on a fiddle. The lady swoons on a couch. She cannot even bear her own perfume.

The gentleman is sawing on the fiddle to keep from swooning too. The way they walk you up and down in emergency hospitals after an overdose of sleeping pills.

☆ ☆ ☆

There is something wrong with this picture. The gentleman has given the lady some perfume. Now he must fiddle around while they both recover from the fumes.

Is this any way to spend Christmas?

The perfume people hand out a good deal of misinformation, it seems to me. There is a picture of a dolly in a veil. She is off the ground and about to pull up her landing gear from the looks of things. Underneath this picture is a line of type. It says:

"FRENZY . . . men cannot resist . . ."

Well, now you go out and buy a jug of this dip and present it to the lady. She dabs it on. You sit back and wait for the action.

Let me advise you on this subject. Possibly men cannot resist. But ladies can. Why, I could show you the mark of a high heel that the doctor said was the worst . . . But who wants to listen to an old man's memories?

Why this is put behind the ears is an odd (*Continued on page 88*)

A Dream Come True: He's a Doctor

(Continued from page 61)

Dr. Charles A. Desch, left, senior resident, watches Al operate a cast-cutter.

liking. "It was almost as bad as my freshman year when I dug ditches to get the tuition money." The money he saved in the three jobs put him through his final years.

Al's third year marked the beginning of training in the clinical aspects of medicine, surgery, and related subjects. He spent three months on medicine and three months on surgery in Milwaukee's Veterans Administration Hospital and the County Hospital. Other three-month periods were spent in pediatrics in the Milwaukee Children's Hospital, in psychosomatic medicine at the VA hospital, and learning operating room technique at the medical school. He spent three months in surgery in the VA hospital. In addition, Al had the opportunity of taking any elective courses he wanted.

All of the clinical work in the hospitals was conducted under strict supervision of faculty members on the teaching staffs, and with those practicing physicians in the city who served as clinical faculty members. Primary emphasis was placed on bedside teaching. There was a minimum number of lectures.

In his last two years, Al was classified as a clinical clerk in the hospitals. In pediatrics, he came in contact with the diseases of children, and he learned how to care for youngsters. Under close supervision in the VA hospital, he was introduced on an intimate basis to the psychoses and psychoneuroses of patients and various psychiatric therapies. His three-week course of study included mental examinations, diagnosis, prognosis, and treatment. He was also part of a group that was assigned to read pertinent and current periodicals, and he participated in bi-weekly roundtable discussions.

In the junior surgery course, neurosurgical and plastic problems were included with the general surgery assignment. And he started to perfect his operating room discipline.

Al will spend practically all of his fourth year in the hospitals. He will spend four months on medicine and surgery in the County and VA hospitals, and three months, on rotation, in outpatient clinics where he will cover obstetrics, gynecology, and pediatrics.

In the hospitals, he will spend two weeks in orthopedics, general surgery, anesthesiology, and other specialties. The schedule is flexible and the design is primarily to acquaint each student with various clinical problems in many fields. It is not intended to give a student training in specialty work, but rather a taste of the problems, diagnosis, and treatment of all types of medical and surgical cases.

For four months, Al will be assigned to the Milwaukee Hospital for Mental Diseases and the Milwaukee Sanitarium Foundation. He will also study otolaryngology, dermatology, and physical medicine at the VA Hospital, and tuberculosis at the Muirdale Sanatorium.

In his otolaryngology experience, Al, who has previously learned the principles of diagnosis and treatment of diseases of the ear, nose, and throat, will spend quite a bit of his time in ward care in various Milwaukee hospitals. Under the direction of faculty members, Al will take clinical histories and perform physical examinations on patients with skin ailments.

He relaxes at home with his wife, a Marquette graduate in medical technology.

Al has the problem of deciding what kind of a doctor he wants to be when he receives his M.D. degree. "I've tried just about everything," he said, "and being a general practitioner appeals to me. I haven't given up on pediatrics or thoracic surgery —they're both sort of pet hobbies— but I think being a general practitioner is still my dish."

Al hasn't decided where or in which hospital to serve his year as an intern. "It will probably be somewhere in the Midwest," is all he is sure of. After he interns, Al, as a resident, will be required to spend from two to five additional years of training, depending upon the particular field in which he wants to specialize.

Then he'll be able to practice medicine—his life's dream fulfilled. END

Eating Well in the Teens

(Continued from page 37)

juices. Other sources of vitamin C are strawberries, cantaloupe, raw or quickly cooked vegetables, especially peppers, broccoli, cauliflower, Brussels sprouts, turnip greens, cabbage, and potatoes.

Oranges and grapefruit or their juices (fresh, frozen reconstituted, or canned) are used widely throughout the country at breakfast. To a lesser degree, so are cantaloupe and strawberries. If a teen-ager skips breakfast, therefore, he will usually not make up his loss of vitamin C during the remainder of the day. That is one more reason why every effort should be made to get teen-agers to take time to eat a good breakfast. If they don't, their diets are liable to be limited in vitamin C.

If, because of economic circumstances, your food budget cannot include enough oranges and grapefruit, then use large amounts of potatoes and tomatoes in your daily menus; also some of the other vegetable sources of vitamin C.

Most teen-agers get at least one-quarter of their daily food from snacks. Socially, snack time is of major importance to them. It can also be important nutritionally, whether at the luncheonette around the corner from school, at the drugstore counter, at the ball field, the movies, at dances, or while watching TV.

Unfortunately, potato chips, French fries, popcorn, candy, and carbonated beverages are generally the popular choices. But if a young girl or boy is given a working knowledge of nutrition and what it means in terms of good looks and the strength to win, she or he may change his habitual snack pattern.

For a change, instead of French fries, how about a good pizza (cheese is a first-class source of protein)? Or hot dogs or hamburgers? How about toasted cheese or peanut butter sandwiches (for protein and iron)? Or malted milk or milk shakes which supply calcium, vitamin A, thiamine, and riboflavin, as well as the large amounts of calories needed by teen-agers of normal weight. All of these items have teen-age appetite appeal, plus social acceptance among the crowd.

Most young people like out-of-hand fruit such as apples, bananas, pears, plums, and tangerines. But usually, snack bars don't stock them. More fruit vending machines in favorite snacking spots would materially add to teen-age nutrition.

TV snacks at home can be nutritionally important without seeming "square" to the young watchers. Most of them like crisp raw carrot sticks and celery, salted nuts, fruit, hunks of cheese, or small cherry tomatoes. Many will go for chilled fruit drinks if offered to them.

MOST 18-year-olds take pride in driving automobiles, a skill demanding clear vision both day and night. If they realize that good eyesight and protection against certain diseases of the eyes depend in part on foods that supply vitamin A and riboflavin, they may reach for a carrot with one hand and a glass of milk with the other. Three or four carrots a week will insure them of getting enough vitamin A; and milk, as well as meats and dark-green leafy vegetables, are abundant sources of riboflavin. The more we prove to teen-agers that good nutrition helps them get more kick out of their young lives, the less we'll have to worry about what they eat.

Of course young people must have lots of calories to supply their strenuous demands for energy. Nothing will stop them from devouring sweets, carbonated drinks, fried chips, pies, and other high-calorie snacks. However, all their calories should not come from these foods.

"Leader foods" such as meat, fowl, eggs, fish, fruits, vegetables, whole-grain, enriched, or restored breads and cereals, milk, and other dairy products all contain calories. But along with the calories go nutrients that build bones, blood, nerves, and flesh.

From such "calories in good company" the 2100- to 2600-calorie diet for girls and the 3100 to 3600 diet for boys should mainly come. Otherwise it will be almost impossible for a teen-ager to get enough vitamins, minerals, and protein within the recommended calorie allowance.

Many snacks, popular with teen-agers, carry a heavy load of calories: 10 French fries—155; 10 potato chips—110; one doughnut—135; chocolate ice cream soda—455; chocolate milk shake—520.

OFTEN a chocolate nut bar and cola drink take the place of a nutritious lunch. The bar contains 150 calories and the cola more than 100, but for the most part those calories do not travel in good nutrition company. They are all low in or devoid of the three nutrients in short supply in so many teen-age diets, namely iron, calcium, and vitamin C.

This uncontrolled snacking carries another threat to teen-age well-being. Teen-agers need large quantities of calories daily, but cannot use more calories than the amount required for growth and physical activity. When the teen-ager eats in excess of his caloric requirement, his body stores the surplus calories in the form of fat. Girls, particularly, tend to fatness for this reason. It is not very difficult for them to exceed their 2100- to 2600-calorie requirement if they indulge constantly in high-calorie snacks.

Exercise burns up calories. A girl who consumes more calories than she needs and also takes little or no exercise is threatened with weight gain. Playing in a volleyball game, square dancing, or a brisk walk to school can use up calories and help keep weight normal. When calories and activity balance, young people need have no fear of getting fat.

That is why sports and games and other activity interests are vital to teen-age good nutrition and health. Unfortunately, and contrary to popular belief, the average American teen-ager is less active than his parents were. That is largely due to a change in our cultural pattern. The automobile, the school bus, elevator

apartments, less interest in dancing and more in sitting events, such as watching TV and movies, fewer available spaces for outdoor games (the vanishing of the old sand lot for baseball and the old swimming hole), and a foot-dragging response to the President's Physical Fitness Program.

Research, medicine, and clinical experience have piled up massive evidence of the need to improve teen-age diets. But how? The consensus of informed opinion among nutritionists, educators, and psychologists is that to make any attack on bad eating habits effective, the teen-agers themselves must take part.

E. Neige Todhunter, Ph.D., Department of Foods and Nutrition, University of Alabama and past president of the American Dietetic Association, internationally recognized for her work in improving children's diets, believes part of the solution lies with Parent-Teacher Associations and a more flexible school lunch program.

"An active Parent-Teacher Association will urge the school to cooperate in teaching children about food and health. The school lunch program is one of the best places to do this. It should be more than just a service. It should become part of the over-all educational program," Doctor Todhunter feels. END

FOR FURTHER READING

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Perinatal Study

(Continued from page 25)

lives of 15,000 children each year, it will be one of the most significant contributions to the welfare of mankind that history has recorded. And by expanding the scope of the study, physicians eventually will be able to analyze the patterns of congenital defects, such as cerebral palsy, and many human diseases.

The first headquarters for the AMRF Perinatal Study was an old red brick house under the Frankford elevated tracks in northeast Philadelphia.

THE plan was to limit the pilot study to hospitals which handled a minimum of 500 child deliveries a year. Nearly all babies today, at least in the larger communities, are delivered in hospitals. Doctor Kane estimates that in Philadelphia less than one percent of the babies are not born in hospitals and these are mostly "accidents" in which the baby started to arrive before the mother could get to the hospital. Although midwives were allowed to practice in Philadelphia, the annual licensing of midwives by the city was discontinued because none applied.

In addition to having 500 or more deliveries per year, other requirements for hospitals participating in the Perinatal Study were these: The hospital had to be accredited by the Joint Accreditation Commission on Hospitals, it had to maintain a delivery room log book, and the hospital had to have a responsible record room librarian and a functioning perinatal study committee.

A brief announcement in the *AMA News,* a fortnightly newspaper distributed to AMA-member doctors, invited applications from hospitals interested in participating in the pilot study. Doctor Kane said the committee was prepared to handle up to 100,000 delivery records from qualified hospitals. The study group was immediately swamped with requests to handle data on 300,000 births. One Chicago hospital alone could supply data on 7000 births per year. Another request was that the doctors process data on all the child deliveries from an entire state.

Because it was a pilot study, the advisory committee finally selected 91 hospitals scattered throughout the nation, but with various types of hospitals represented. That is, the sample was selected to include large hospitals and small hospitals, university and non-university, sectarian and non-sectarian, military, and so on. Each hospital was supplied with code sheets, one for every baby delivered, and instructions for filling in the necessary information by the record librarian. They were sent to the Perinatal Study Headquarters in Philadelphia either in batches of 100 or once a month.

Each perinatal code sheet contains 90 possible items of information that can be fed into a computer. The number was selected because the data later can be transcribed from the code sheet to 90-column punch cards. The hospital record librarian enters such information as the hospital code number, the day, month, and year of birth, the code number for the doctor attending the mother, the length of pregnancy, types of anesthesia and drugs used, duration of labor, type of delivery, and a record of the mother's previous pregnancies.

A number of six-digit spaces are reserved to record complications and ailments of the mother and child. All the known ailments have been cataloged by the American Medical Association in a book called *Standard Nomenclature of Diseases and Operations.* The ailments are listed in a six-digit code, part of which tells the location of the disease in the body. For example, leprosy of the larynx is designated by the code numbers 330-124. The first three numbers tell that the disease is in the larynx and the second three numbers describe the disease.

THE code sheet information is transcribed by a keypunch operator into one of the 90-column punch cards. Since an alpha-numeric code can be punched into the cards, it is possible to use a variety of 36 punches (26 letters plus the numeric digits from 0 to 9) in each column. If one of the keypunch operators enters the wrong information, an electronic sorting machine can pick

up the mistake and hold the card out of the "deck." The sorter can riffle through 850 cards a minute and pick out those containing a specific item of information. It also counts the cards and it sorts them.

When all the cards have been verified, a second batch is made and stored as a reserve deck in a fireproof location. The card information then is transcribed on magnetic tapes and, again as a safety precaution, three tapes are made. One is used as a working tape, one is held in reserve, and one is stored in a bank vault. The tape, incidentally, works both ways—it can transcribe information from cards or it can be used to produce new cards.

Depending on the computer equipment used, the information contained on from 50,000 to 350,000 punch cards can be stored on one roll of magnetic tape. A magnetic tape unit can feed the information into the computer at a varying rate of 25,000 to 200,000 characters per second.

When a particular piece of information is needed by the Perinatal Study group, such as the ratio of boy babies to girl babies born last year at the participating hospitals, the data is delivered by a high speed printer that automatically types 600 lines of 130 characters per line each minute.

ONE of the perinatal items processed by the computer indicated that although four percent of the full-term babies were breech-delivered, 12 percent of the neonatal deaths occurred among breech-delivered babies. Such statistics in themselves are of little value. But if the information can be fed back to the hospitals and applied to reduce the mortality rate among breech-delivered babies, the analysis will have proved itself worthwhile.

The study has been programmed with dozens of cross-checks to detect errors and inconsistencies. If a hospital, for example, reports a mother who is 50 years old or a mother whose pregnancy lasted 50 weeks the computer rejects the information. Then the hospital is asked to correct or substantiate the data supplied.

Other cross-checks are more subtle and enable a computer to detect a childbirth with complications, even when the hospital has not reported complications on the code sheet. "This study requires a tremendous amount of work by the physician and hospital staff," says Doctor Kane. "But the reward is better medical care for the mother and child."

NOW rounding out his first year as director of the biggest program in U.S. history to save the lives of babies, Doctor Kane has moved his operation from the old brick house to larger quarters, but still in Philadelphia. He has tremendous faith in the ability of the independent doctor, armed with modern tools, to reduce the infant mortality rate. About criticism that America lags behind other countries in improving the perinatal death rate, Doctor Kane argues that there is no scientific basis for the complaint. "As of 1961," he says, "there simply is no adequate agreement among nations as to a common basis of comparison from which one can calculate significant conclusions."

In Finland, he points out, infants weighing less than 800 grams (approximately one pound, 12 ounces) are not included in the stillborn statistics. New Zealand does not require the same type of reporting for Maoris and non-Maoris. Belgium and France list as stillborn all children dead at the time of birth registration, even if the birth is not registered for several days.

What about the argument that rooming-in care reduces the infant mortality rate?

"There also is no basis at this time for the belief that rooming-in care has decreased significantly the infant death rate. In fact, hospitals which do *not* have rooming-in care have the finest infant survival rates in the world," says Doctor Kane.

From a pilot study of 150,000 births in 1961, the Perinatal Study program hopes to be able to expand in 1962 to handle a half-million births with the help of funds contributed through the American Medical Research Foundation. Eventually, the committee envisions a program that will analyze all of

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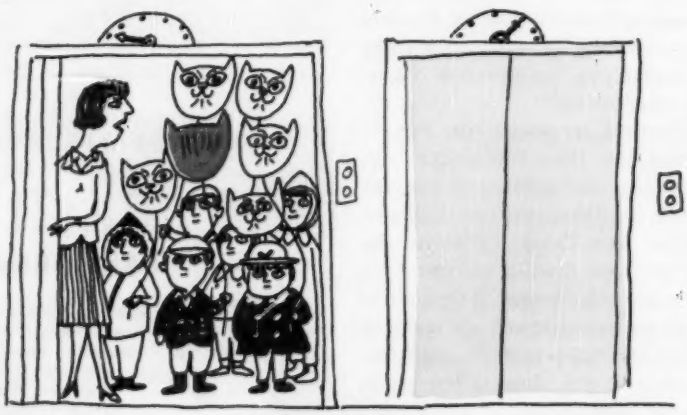
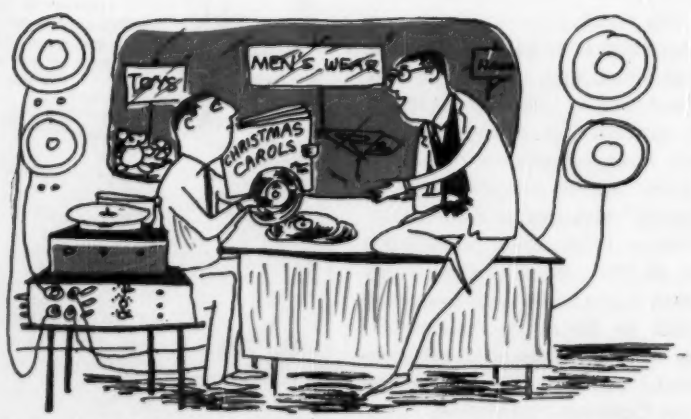
A Woman's Way

by CISSIE

"Do you have a clause about profit sharing?"



"I said, face the front please!"



"Remember, Sellars, research shows that customers buy faster when listening to 'Hark, the Herald Angels' than to 'Silent Night.'"

the nation's baby deliveries. As the program grows larger, the cost per birth studied goes down. If the project is big enough, the data cost per birth may drop to 40 or 50 cents for complete processing. The present cost is roughly $1 per birth.

The Perinatal Study itself is a non-profit venture. Doctors and hospitals do not pay for the information received and they do not receive pay for participating. As Doctor Kane pointed out, the main benefactors of the program are the married couples of the United States—the potential parents.

In addition to delivery room problems, Doctor Kane is preparing to investigate with the UNIVAC equipment at his disposal the patterns of babies born live but with disorders that do not permit them to develop into normal, self-sufficient citizens—the babies who eventually become social problems to their families or wards of the state.

He also plans to analyze infrequent illnesses associated with pregnancy. For example, an individual doctor might attend a rare case of multiple sclerosis in a pregnant woman. The doctor would like to know about similar cases. With a backlog of millions of childbirth reports, the Perinatal Study people could ask UNIVAC to sort out all the cases of mothers with multiple sclerosis.

A more intangible advantage of the Perinatal Study project, says Doctor Kane, is that it can save millions of dollars in the "scut" work of research. Heretofore, individual research projects required a great deal of time and money simply to round up a certain amount of information about a medical problem before probing into a new area. Now, from the Perinatal Study's backlog of information, much basic data can be provided almost immediately.

FUTURE drugs and techniques can be evaluated with the help of a space previously provided on the code sheets and punch cards. Already, the researchers can correlate information about certain drugs and anesthetics with delivery problems. The day may not be far off when an obstetrician can ask UNIVAC to predict the relative success of

several different anesthetics available for use in a Cesarean section.

The American Medical Research Foundation already has much at stake in saving babies' lives with the help of electronic computers. At the present time, nearly 150,000 babies die annually in the last four months of pregnancy or the first year of life. Many thousands more are born with congenital defects—cerebral palsy, mental retardation, epilepsy—which can be more tragic than death itself.

In the next decade, the population of children 15 years of age and under will increase from about 55 million to 67 million. The responsibility of the older generation will be the safe arrival of the yet unborn millions and their protection from disabling ailments. The goal of the American Medical Research Foundation is to reduce the present rate of infant mortality and morbidity by 15 to 25 percent in the next five to 10 years. Ambitious? So was the jump from scratch pads to solid-state computers, but the doctors succeeded. END

How Science Is Breaking the "Silence Barrier"

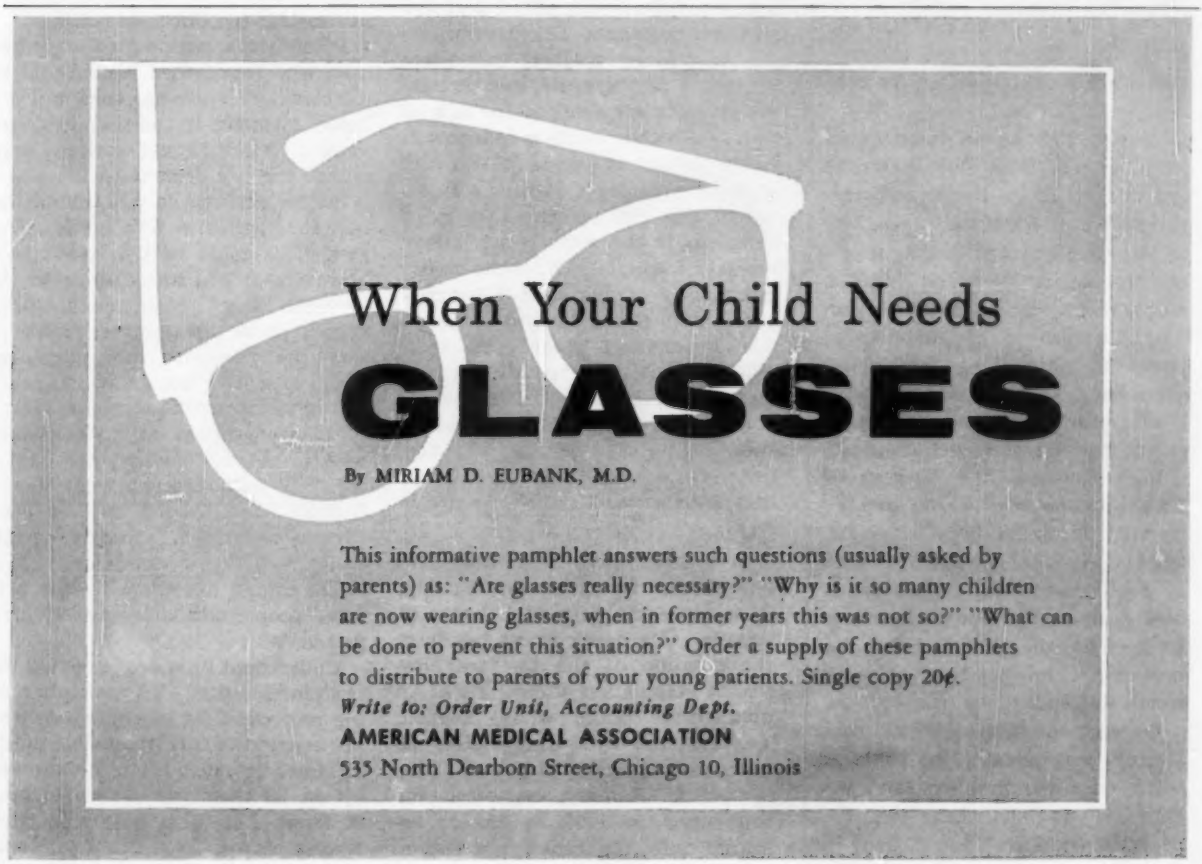
(*Continued from page 29*)

eight. Adult victims sometimes neglect the condition for 20 or 30 years. Antibiotics may seemingly clear up the infection, but instead remove only the outward symptoms. "When this happens," says Dr. W. D. Schlosser of the Pennsylvania Academy of Ophthalmology and Otolarnygology, "the disease smolders, like coals of a poorly extinguished campfire. It can smolder for years, then suddenly flare up. Meanwhile, it may have destroyed part or all of the middle ear."

Help is now at hand for victims of this kind of deafness. Using the operating microscope and grafting procedures recently developed in Germany, the ear specialist now works complex marvels of therapy on many of these cases. He drills out diseased bone and tissue. If accumulated infectious fluid has perforated the ear drum, he can build a new one with a graft of skin from the ear canal. If the hammer, anvil, or stirrup—or any combination of them—has been destroyed, he can often reconstruct the drum and middle ear and restore transmission of sound vibrations. In extreme cases, where infection—or perhaps a serious head injury—has destroyed the entire chain, he can sometimes fashion a middle-ear chamber that gets along without one.

"Tympanoplasty," says Doctor Schlosser, "has restored dry ears to many patients with long histories of chronic infection and severely impaired hearing. More than that, it has vastly improved their hearing, and returned them to the noisy world of sound." Patients are carefully screened for tympanoplasty. Dry ears are restored in 70 percent of the cases; serviceable hearing is given to 60 percent.

WHAT about hearing aids? They are an indispensable help to thousands with impaired hearing. But experts urge the handicapped to consult an ear specialist before buying one and to be realistic in their expectations. Hearing aids should be individually fitted to each patient after a selection test with representative aids. (*Turn page*)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Inspiration for Research

Violins and Telephones

THE BASIS for most of what is known today about the mechanism of hearing has come from the research of a Harvard University physicist who began his investigations as a telephone engineer in Budapest, Hungary, in 1924.

Credited with having been the first to look into the ear and to demonstrate with instruments what really happens, Georg von Bekesy, Ph.D., used his knowledge of how telephones "hear" to build a model cochlea able to detect the difference in sound waves. He demonstrated experimentally the function of the components of the ear and devised many instruments for use in his studies, among them the widely-used Bekesy audiometer, which measures a person's hearing ability.

In addition to describing how sound is transformed into electrical nerve energy, he demonstrated the mechanisms by which the information that sounds contain is conveyed to the brain.

Though Doctor von Bekesy had little to do with the practical applications of his findings, his research has enabled ear specialists to improve methods of diagnosing and treating deafness and thus has aided thousands of disabled persons. Because of his work, surgeons today are able to replace the small bones of the middle ear with plastic substitutes and build new ear drums of skin or vein tissue.

Last October, the 62-year-old scientist, who says he became interested in sound because of his fascination with high-pitched gypsy music as a youth, was named one of the few non-physicians ever to receive the Nobel prize for medicine. The tax-free prize is worth $48,300.

"If someone is a scientist," says Doctor von Bekesy, "he loves to work on some problem, and my hope is to contribute to the deafness problem."

"Hearing aids can be a great boon, and are a major means of coping with hearing loss," says Dr. Raymond Carhart, noted Northwestern University audiologist, "but they remain, after all, only 'aids.' They will amplify sound so you can use it, but don't expect them to restore hearing to its normal levels." If fitted early enough, most handicapped children of average intelligence can learn to use hearing aids. How early? Experts recommend, "As early as possible." Two- and three-year-olds have been fitted successfully.

These developments, combined with new electronic testing aids and laboratory tools, are encouraging otologists to step up the attack on other questions of vital concern to the deaf: What causes otosclerosis? Congenital deafness? Hearing losses that originate in the brain? How does the inner ear transform sound vibrations into nerve impulses? What is the significance of the electrical signals, or potentials, emitted by the inner ear?

The speed with which researchers learn the answers depends on several factors. One is money. Of the more than 80 universities and medical schools offering courses in otology, less than 30 can afford deafness research programs. Scientists working on otology projects quit them for better paying posts, and promising projects are dropped for lack of funds. Another block is manpower. Little effort is made to attract students to otology. Result: a shortage of research personnel. A third handicap is the scarcity of human research material. The intricate ear mechanism of the deaf is usually buried with them. Many leave documented medical records of their affliction, but these are of little help unless correlated with laboratory study of the deceased's bones and tissues. Before this can be remedied, more deaf persons must will their ears to science.

BUT researchers in medical centers across the nation are tackling these problems with high hopes of success. One development has been the creation of the Deafness Research Foundation of New York. An otosclerosis victim whose hearing was restored by surgery after 20 years of partial deafness, Mrs. Hobart C. Ramsey, organized the foundation in 1959 to finance research into the cause, prevention, and cure of deafness. Its annual grants have risen from $15,000 to more than $105,000 in the last three years. The foundation has also launched a project of exciting significance to scientists: the establishment of a nationwide chain of temporal bone "banks"—medical centers or laboratories to which individuals may will their outer, middle, and inner ear structures for research.

What the University of Chicago's Doctor Lindsay calls "the terrible barrier of silence"—between the deaf and those who can hear—is being crossed in wonderful and enduring ways. But as researchers probe more deeply into the mysteries of hearing and the mechanism of the ear, still greater triumphs lie ahead. Beyond doubt, they will bring new dimensions of happiness to children and adults now handicapped. They will prove medical blessings to millions yet unborn. END

Letter From Stan Delaplane

(Continued from page 81)

thing. I have been unable to solve it in time for the Christmas season.

Possibly it is put on for the gentleman who is smashed behind you in the elevator. I have had some mighty heady moments in the shoppers' elevators. Before I could work my way out at the toy department.

Maybe perfume is put behind the ears for gentlemen who sneak up on you. This must be done privately, however. If you sneak up on ladies privately they squeal delightfully. If you sneak up on them publicly, they bat you with their handbag. Very soon you are in police court trying to think of an explanation.

If you should say: "I merely wished to sniff behind the lady's ears," I cannot think what would happen. You would have a very curious reputation, though, for one thing.

Yet this is exactly what the perfume people and ladies are inviting you to do.

Understand I am not knocking the perfume industry. I am simply asking protection for us gentlemen who are exposed to this irresistible musk. If ladies do not wish to be sneaked up on, let them put the perfume on in front. Let them put it on their boxing gloves. END

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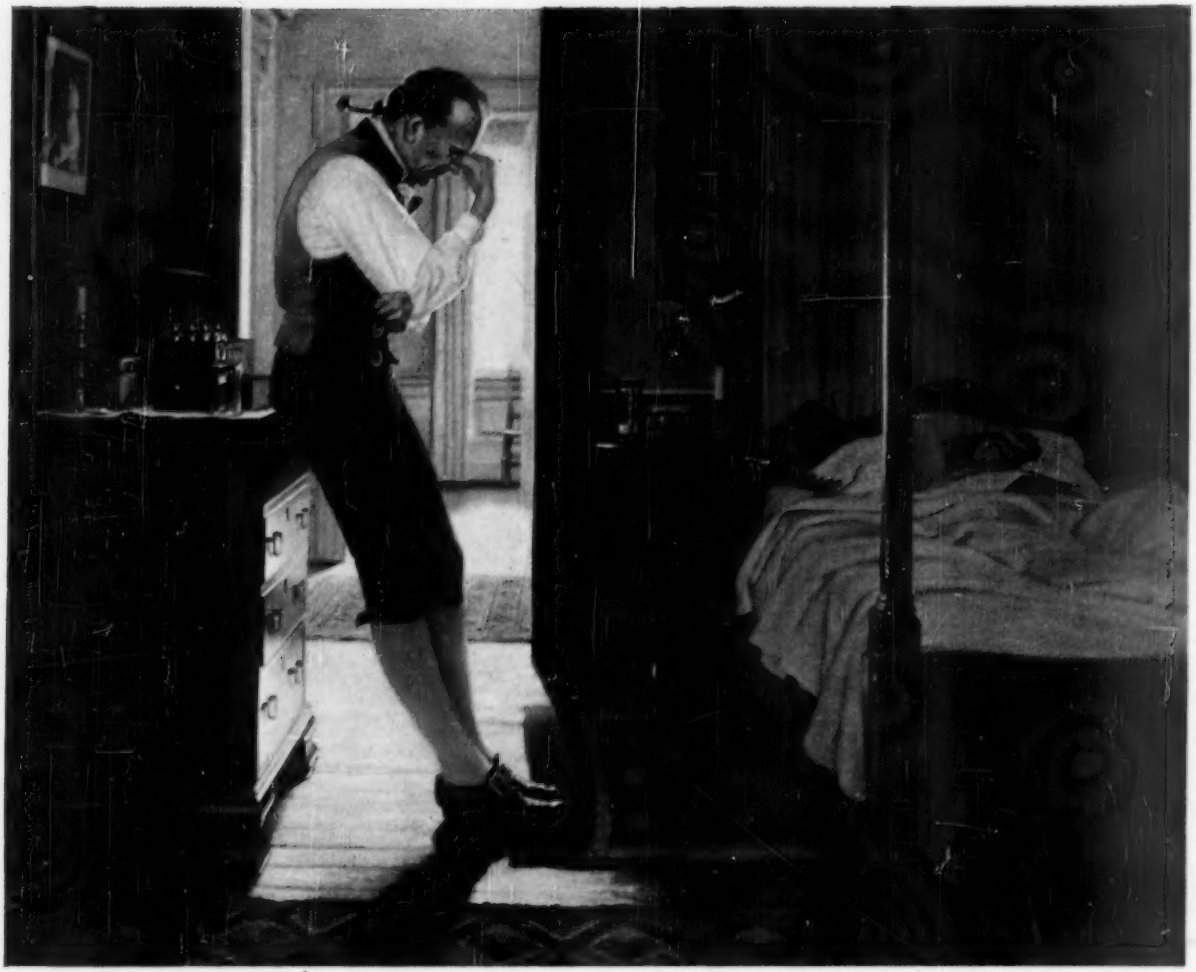

BENJAMIN RUSH: Physician, Pedant, Patriot—one of a series of original oil paintings commissioned by Parke-Davis.

Great Moments in Medicine

The first years of the new United States demanded much of the men who helped shape the union, and Doctor Benjamin Rush proved worthy of the challenge. A signer of the Declaration of Independence, Rush was also an Army Surgeon and teacher. He was a man who backed up his moral convictions with great physical courage. In 1793, a yellow fever epidemic scourged Philadelphia, then capital of the fledgling nation. While others fled, Rush stayed on to try to help the sick, and himself survived two attacks of fever. Though many of his ideas were controversial, he has come to be known as the United States' first great physician.

Men like Benjamin Rush, who will persevere for the common good despite personal danger, benefit all mankind. It is this kind of individual courage that has raised medicine from unscientific beginnings to today's skilled and dedicated profession.

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